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DECEMBER, 1896.

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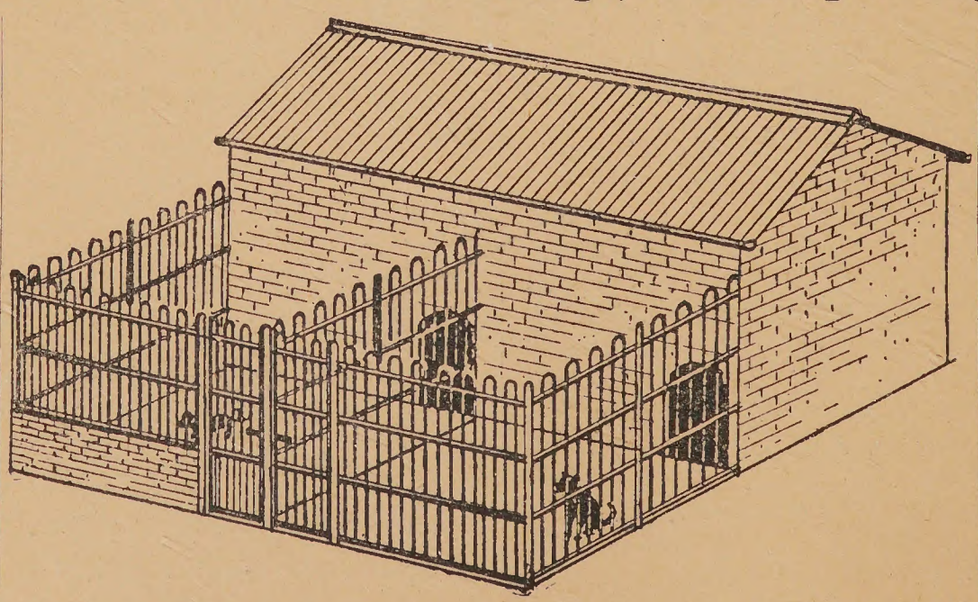

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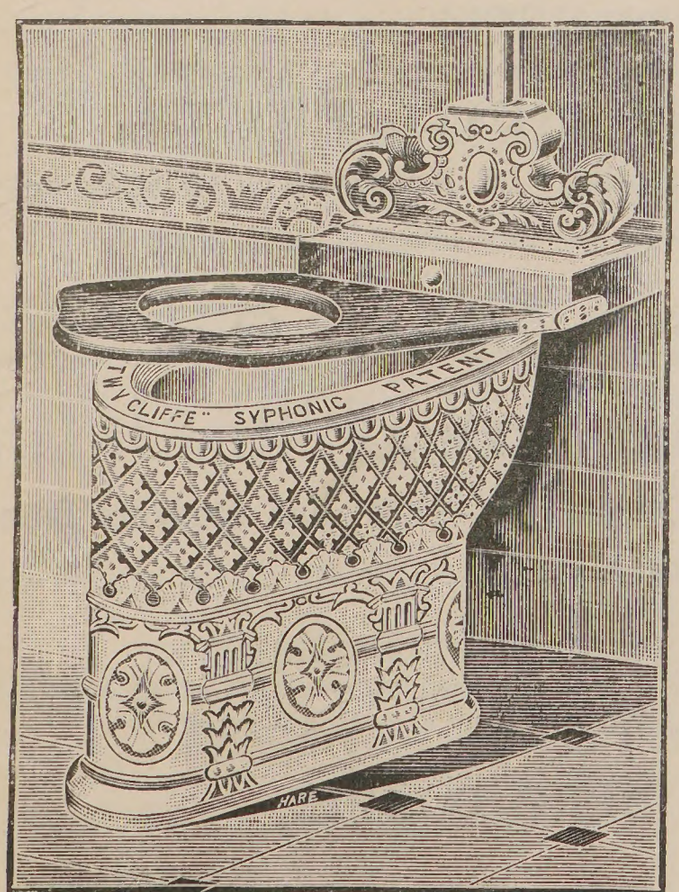

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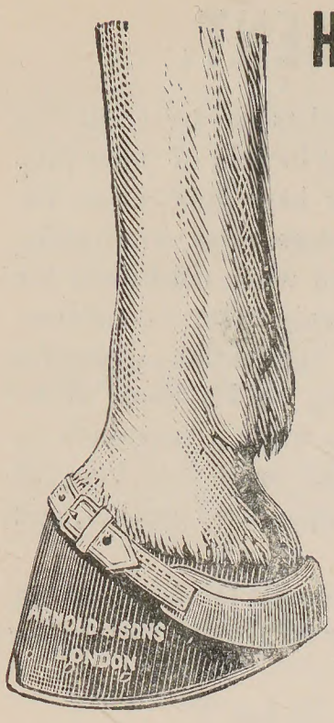

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Original Papers.

A CLINICAL REPORT ON THE APPLICATION OF JEYES' CREOLIN AND JEYES' FLUID IN VETERINARY PRACTICE.

By John A. W. Dollar, M.R.C.V.S.

Introduction.

Four months ago I was requested by Messrs. Jeyes' Sanitary Compounds Company, Ltd., to test in my practice the value of certain preparations sold by them, and known respectively as Jeyes' Fluid and Jeyes' Creolin. Prior to 1892 I had occasionally used both of these preparations, and had seen the results of analyses conducted by Drs. Bodlaender of Breslau, Pieper of Hamburg, and Morpurgo of Venice, as well as reports of bacteriological and clinical tests by von Esmarch (1),* Buchner (2), Fröhner (3), Billroth (4), Nussbaum (5), and others; but it was only during my residence in Germany in 1892–3 that I learned how widespread was the use of creolin as an antiseptic and disinfectant both in medicine and surgery. The material employed in Germany under the name of Creolin-Pearson, and that known in France as Cresyl-Jeyes, are identical with Jeyes' fluid; Jeyes' creolin is a more refined product, manufactured at the request of certain English surgeons and medical men. I am informed that the different names have been given in order to meet the Trade Marks Acts of

* References will be found on the last page of the report.

the various countries, and that there are really only two preparations, viz. Jeyes' fluid and Jeyes' creolin.

Jeyes' creolin and fluid are, I believe, very largely used in this country, but until recently few critical observations on their employment in veterinary practice had been published, and I therefore had less hesitation in complying with Messrs. Jeyes' request, as I hoped possibly to contribute something new to what was already known on the subject. I may at once say that in a great many cases my observations appear to have been anticipated either in Germany or in this country (though to this rule there are one or two important exceptions); and, therefore, that the present report can only claim to corroborate in greater or less measure the work of other investigators. Moreover my investigations have been of a strictly clinical character, and, save a few, the cases reported are such as occur with moderate frequency in every town practice. It has not always been possible to give full details of each case, though this has been aimed at; the cases quoted are in general typical of a number. In some instances I have substituted a general statement for the reports of a number closely resembling each other.

Again, I have not thought it worth while to describe *in extenso* operations where creolin has been used as a preliminary disinfectant or for instruments, &c., because in most of these I have afterwards had recourse to dry dressings; and although my *impression* of the use of creolin may in such have been favorable, the results could not logically be ascribed to creolin alone. Several otherwise interesting notes have on this account been discarded. Needless to say, many departments of veterinary surgery in which these preparations might be of value are unrepresented, and the limited time at the disposal of a town practitioner has precluded the possibility of that painstaking description which is only open to observers otherwise disengaged and surrounded by large numbers of intelligent and willing assistants. At the same time the limitations and experience of independent every-day work are not without their value in controlling and directing into a practical channel such an investigation as the present.

The exact nature and scope of these experiments were left entirely to my discretion, the only proviso on Messrs. Jeyes' part being that the conditions of my experiments should, as far as possible, conform to those of every-day practice; and on mine that perfect freedom should be

allowed me to publish all details, whether favorable or otherwise. I have, therefore, used the materials whenever apparently suitable occasion has arisen in my practice.

The cases are detailed much as they occurred. The sole attempt at classification has been the division of cases under the head of horses, oxen, dogs, &c. Should the present series be extended at any future date it may be necessary to remedy this, otherwise it seems of little importance.

EXPERIMENTS ON THE HORSE.

Obstinate Pruritus of Hind Legs.

July 17th.—J. M. & Co. Black mare, nine years old, excessive irritation of hind legs, stamps incessantly in stable, and has caused a number of wounds, from 1 inch to 4 inches in length, on the front and sides of both hind legs. Solutions of Plumbi Subacet. (3 per cent.), Sod. Bicarb. (5 per cent.), and Zinci Sulph. (2½ per cent.) having failed, recourse was had to dressings of Jeyes' fluid (5 per cent.) applied twice daily.

19th.—Irritation greatly diminished. Mare stamps much less.

22nd.—Irritation entirely gone. No desire to rub legs. Wounds doing well; ordered legs to be washed and re-dressed.

24th.—Wounds dry, all itchiness disappeared. Ordered parts to be washed and animal to resume work.

Ringworm.

July 17th.—Messrs. C. Bros. Bay mare, about ten years old. Affected with ringworm (*Tricophyton tonsurans*) along the back and withers. As this case was typical of a very large number subsequently seen, I may devote a few lines to describing it. The animal was in good general health and condition, but its grooming had been neglected. The first symptoms noted were irritation of the skin of the neck and withers. The animal rubbed its mane against the manger, removing the hair and making a bare spot, which became covered with vesicles and subsequently with a number of small dry adherent brown scabs. The disease soon spread to the withers and back. Over small circular spots the hair was seen to stand erect and to be matted together. By grasping these masses they could usually be detached from the skin, leaving a smooth pigmented (black)

surface. The base of the bunch of hairs removed was found matted together with a whitish growth. Small masses of this growth when placed on a slide, moistened with 5 per cent. caustic potash, squeezed under a cover-glass and examined with a low microscopical power ($\frac{1}{4}$), showed numbers of small ovoid highly refractile spores, sometimes forming short chains, and a variable number of extremely fine filaments closely felted together. From these appearances I judged the condition to be due to *Tricophyton tonsurans*.

The irritation spread so that over spaces as large as one's hand the skin was bare, and, in consequence of the animal rubbing, covered with vesicles or dry scabs. The treatment adopted was dressing once daily for three days with 5 per cent. Jeyes' fluid, washing the parts thoroughly with soft soap and warm water (using a brush), and resuming the application.

19th.—Less irritation. The progress of the disease is checked.

22nd.—The scabs are beginning to fall off. No fresh ones formed. Animal rubs very little.

24th.—Continued improvement. Skin again becoming clean.

27th.—Hair beginning to grow once more. Dressed only every third day.

August 7th.—Ordered back to work, precautions having been taken for disinfection of all contaminated harness, stalls, &c.

Pruritus of Hind Legs.

July 17th.—Messrs. C. Bros. Bay gelding, severe pruritus of both hind legs, especially of off hind; several long wounds caused by heels of opposite shoe. Applied $7\frac{1}{2}$ per cent. solution Jeyes' fluid once a day. Parts to be washed every third day.

21st.—Irritation allayed; wounds healing.

25th.—Dry scabs covering wounds are separating, showing healthy skin below. Ordered to work.

Ringworm.

July 21st.—Messrs. C. Bros. Dun mare, aged; Tricophyton ringworm along back, withers, croup, and tail. Very itchy, and continually rubbing against neighbouring objects. Large number of discrete, at some points confluent, vesicles formed by friction. The older of these covered with brown adherent scabs, which along the upper part of the back and neck attain the size of the palm of

one's hand. The skin of the neck is beginning to show folds. Ordered dressing with 5 per cent. of Jeyes' fluid once daily; a soft brush to be used and the fluid brought into thorough contact with the skin. To be washed with soft soap every third day.

24th.—Itchiness has entirely disappeared; animal no longer rubs tail; the scurf is beginning to rise over large areas of the croup, and the skin where previously bare, shows commencing growth of hair.

28th.—Crusts separating; has been washed twice, and disease seems almost cured. As a precaution ordered dressing every second day with 5 per cent. of Jeyes' fluid. Hair now growing rapidly.

August 2nd.—All signs of irritation gone. Ordered washing and disinfection of rugs, tools, and stall posts.

6th.—Returned to work. The new coat is growing rapidly, and the only sign of the disease is the slightly different colour shown by the new coat.

Ringworm.

July 20th.—Messrs. C. Bros. Grey gelding, aged; Tricophyton ringworm along neck, withers, back, and tail. Case of some months' standing. Had been at outlying depôt till middle of June, when he first came under my notice. Was then dressed with 5 per cent. emulsion of Ol. Picis, but after a fortnight this was exchanged for a dressing composed of Ol. Picis, 2 fluid ounces; Sulphur Resub., 10 ounces; Ol. Cetacei, 40 fluid ounces. This seemed to lessen but not to remove the local irritation, and after a fortnight's trial has been changed to 5 per cent. Jeyes' fluid.

22nd.—Irritation continues. Owing apparently to the use of Ol. Picis, and perhaps to the friction of the brush, large areas about the withers and back are now sore and inflamed; the horse is very tender, and resents the application. Discontinued Jeyes' fluid and used simple sulphur ointment.

25th.—Itchiness somewhat allayed, and the parts are less tender.

27th.—Ordered parts to be washed with hard soap and water, and 5 per cent. Jeyes' fluid to be resumed.

30th.—The skin is less irritable, the scabs are peeling off, and improvement is perceptible.

August 3rd.—Less irritability, skin rapidly healing.

7th.—Skin now clean, bare patches show signs of new hair. From this time until the

21st, the treatment adopted was dressing every second day with 5 per cent. of Jeyes' fluid, and washing once a week. Discharged as fit for work on this date.

Ringworm.

July 20th.—Messrs. C. Bros. Roan mare, seven years old. Very bad case of Tricophyton ringworm. Has been in existence for some months. Owing to the disease and to irritant dressings applied before animal had come under my care, the skin over the neck and sides of the body was greatly thickened, and, especially about the neck, lay in deep folds. The parts indicated were almost entirely denuded of hair. Ordered the whole body to be washed with shampooing fluid composed of six ounces of hard soap dissolved in a pint of water, and special precautions to be taken to remove all traces of soap. To be afterwards dressed over affected parts with 7½ per cent. of Jeyes' fluid.

22nd.—Was informed that washing and the after application of Jeyes' fluid caused irritation, so that only one dressing had been attempted. This I consider in large measure referable to the extreme soreness caused by previous dressings. As a precaution reduced the dressing to 5 per cent.

25th.—The skin is still extremely sensitive. The folds have not in any way diminished, and owing to the frequent dressings the horse is very shy of interference. Ordered dressing with simple sulphur ointment. Fowler's solution internally.

27th.—Irritation much diminished.

30th.—Skin less sensitive, but horse has again commenced to rub, and the disease has broken out on the inside of each hind leg, which had hitherto appeared free. Ordered body to be washed, and 5 per cent. of Jeyes' solution to be continued.

August 3rd.—Horse rubs less, but it is very difficult to get to the base of the folds of skin. Am also of opinion that owing to the friction of the opposing surfaces of these folds irritation is kept up, and that the action of the air is in some degree responsible for sensitiveness of the skin. Have therefore replaced the watery solution of Jeyes' fluid by the following: Jeyes' fluid, 5 fluid ounces; sulphur sublimed, 10 ounces; whale oil, 100 fluid ounces. Horse to be washed once a week.

7th.—Marked improvement. Skin less sensitive and

rubbing diminished. The folds on neck and sides are also less marked.

11th.—Improvement maintained. After yesterday's washing skin appears cleaner, and parts previously devoid of hair show new though slight growth in places. Folds in skin less marked, though still deep over neck.

21st.—New hair growing over nearly whole surface previously denuded. Folds of skin in the neck much reduced, but at one point over ligamentum nuchæ a piece of skin has been destroyed, leaving wound as large as half an apple. This now granulating. From this date on progress was continuous until

September 15th, when horse was sent to work.

Ringworm.

July 26th.—Messrs. C. and W. Bay gelding, aged. Suffering from Tricophyton ringworm. This was a very bad case. The owners had, on the advice of some empiric, applied various nostrums, in spite of which the disease had continued to make progress. The last application had been a mixture of paraffin oil, tar, sulphur, and black sulphide of antimony. The disease had affected almost the whole body, so that over the neck, shoulders, body, and inside of the fore and hind legs large areas of skin were bare. After a preliminary washing the horse was left almost devoid of coat, and presented a very curious appearance. The skin of neck and sides of body showed deep wrinkles, and the horse was exquisitely tender. Owing to this, simple sulphur ointment was prescribed for the first week. Salines internally until bowels were freely moved, afterwards Donovan's solution.

August 2nd.—Skin less sensitive and folds less marked over body. Horse to be washed and dressed daily with 5 per cent. of Jeyes' fluid.

5th.—Little change. Treatment continued.

8th.—Rather less tendency to rub, but otherwise condition unchanged. Men complain that horse is difficult to dress. Owing to friction of brushes and the horse's rubbing a number of sore places have formed over the back and along the sides of neck, and are covered with thick hard scabs. Prescribed Jeyes' fluid 1 fluid ounce, Ol. Olivæ 8 fluid ounces. A small quantity to be applied over the sore parts on two succeeding days and then washed off. This proved unsuitable, and was not persevered with.

11th.—Little change. Prescribed Jeyes' fluid 5 fluid ounces, sulphur sublimed 10 ounces, whale oil 100 fluid

ounces, to be applied freely without friction once daily, and the horse to be washed once a week.

18th.—Much improved. The sore places are healing fast, and the folds in skin are smaller.

25th.—Improvement maintained. Folds in skin becoming less; skin no longer so extremely sensitive. Hair beginning to grow.

September 1st.—Replaced above with sulphur 20 ounces, whale oil 100 ounces. Improvement maintained. Hair growing rapidly.

8th.—Folds in skin entirely disappeared from sides and partly from neck.

15th.—Signs of irritation about legs, probably owing to faulty dressing. Used 5 per cent. of Jeyes' solution, with sulphur and oil as above locally.

22nd.—Dressings discontinued. Gave orders for burning of clothes and brushes and disinfection of stall.

30th.—Horse went to work. Skin rather inclined to chafe under harness, but otherwise cure complete and satisfactory.

Ringworm.

July 26th.—Messrs. C. and W. Chestnut gelding, seven years old, has spots of Tricophyton ringworm, from size of sixpence to palm of man's hand, distributed along neck, shoulders, and sides. Rubs parts on manger and bails, and has produced several large sores, now covered with dry brown crusts. Ordered affected parts and neighbourhood for at least one inch all round to be dressed daily for two days with creolin 10 parts, Sapo Mollis 10 parts, methylated spirit 5 parts; on the third day the parts to be washed and the application renewed.

30th.—There is less pruritus, and the scabs are beginning to separate at points.

August 5th.—Pruritus allayed, but skin is very tender. Had recourse to the creolin, sulphur, and oil mixture.

12th.—Hair now growing, skin smooth and healthy. Ordered horse to light work.

Note.—In addition to the above I have had a considerable number of cases of the same description, all of which have yielded rapidly to the treatment above laid down. In dealing with skin disease which has already involved large areas and produced wrinkling of the skin, my experience suggests that very mild and non-irritant dressings must be selected. Even watery lotions should be avoided, as the skin afterwards tends to become inflamed. For this reason I rather prefer to follow up the

action of watery solutions of Jeyes' fluid by the liniment above mentioned, which, owing to its oleaginous base seems particularly soothing.

HORSE ATTACKED BY HEN-LICE (GONIOCTES BURNETTI).

July 15th.—Messrs. W. B. and S. Brown gelding, aged, subject of attack by hen-lice (*Gonioctes Burnetti*). This animal, standing next hen-roost, had become infected and showed great irritation. Patches of skin as large as a man's hand were denuded of hair and covered with scabs, the result of rubbing. Ordered dressing with 5 per cent. watery solution of Jeyes' fluid, repeated for two days in succession, and washing on third. Horse to be removed from infected stall. At the same time I suggested to owners the advisability of thoroughly cleansing the hen-roost, whitewashing the walls and roof with a distemper containing 5 per cent. Jeyes' fluid, and dressing the fowls, which appeared in very bad condition, with 1 per cent. Jeyes' fluid solution; the fluid to be rubbed in until the skin was thoroughly saturated, the hens then to be dipped in lukewarm water and rubbed roughly dry.

18th.—The horse no longer shows irritation; the lice appear to have been destroyed, or at least none could be found after a careful search. Sore patches healing. Treatment to be continued.

22nd.—Improvement maintained. Horse to be dressed every second day, and washed about the 27th for last time.

28th.—Sore places healed. Horse to return to work. (The hens which had been subjected to treatment appeared in much better condition, and did not scratch nor take "dust-baths" like the others. Unfortunately the experiment was only partial, and I believe the disease again broke out, the cases cured being re-infected. 1 per cent. solutions do not seem to produce any injurious effect on fowls unless the action be prolonged. In this case the fowls after being dressed were allowed to run about in the open air, and speedily became dry.)

HORSE-LICE (PEDICULUS EQUI).

September 19th.—Black cart gelding, aged. This and another animal when returning from grass were found swarming with horse-lice (*Pediculus equi*). Ordered dressing with 5 per cent. Jeyes' fluid for two succeeding days, and washing on the third day. Care to be taken to omit no points, like the ears, tail, or mane.

22nd.—Saw animals just after being washed. Very few

pediculi could be found, and all appeared dead. As, however, nits were still to be seen on separating the hairs and looking carefully, I ordered a dressing every second day. Horse to be washed about 29th.

30th.—Horses both free of any sign of lice. Ordered to work.

In other cases I have found it needful to repeat the treatment once or twice a week for three weeks, but this has always been successful.

As Disinfectant.

September 17th.—T. N., Esq. Was called to see roan gelding, supposed to be suffering from "nasal gleet." On being tested with mallein animal reacted very markedly, showing it was glandered, and was ordered to be destroyed. In this case the disinfection of stalls, mangers, and floors was effected with 5 per cent. Jeyes' fluid, which was also used in the "lye" employed in the preliminary cleaning. On account of its active principles suffering no change when added to alkaline solutions, this fluid forms a very convenient disinfectant in such cases.

Note on above.—Von Esmarch's researches have shown that "Creolin Pearson"—which, as before stated, is the name given in Germany to Jeyes' fluid—acts even more energetically than carbolic acid on staphylococci, typhus, and cholera bacilli. A 1 per cent. solution of creolin kills the cholera bacillus in ten minutes, and a 5 per cent. solution in one minute, whilst a 1 per cent. solution of carbolic is only efficacious after four days. The growth of the typhus bacillus is checked by a 1 per cent. creolin solution after an hour's action, and almost prevented after twenty-four hours, whilst it is in no way affected by 1 per cent. carbolic after twenty-two days. More recent experiments show that a 3 per cent. solution of creolin destroys the *B. tuberculosis* immediately, in which respect it far surpasses either carbolic acid or sublimate. The specific poison of rabies is destroyed by a 1 per cent. solution in three minutes, but by a 2 per cent. carbolic solution only after two hours. The bacilli of glanders, swine erysipelas, fowl cholera, and of anthrax, as well as staphylococci, are rapidly destroyed by a 3 per cent. solution. Anthrax spores die in two days in solutions of this strength, whilst a 5 per cent. carbolic solution does not always destroy them after twenty days (von Esmarch, Eisenberg, Jäger, Behring, Baumgarten, Heule, Buchner, Peuch, and others). I have on various occasions used Jeyes' fluid in strengths of from 5 per cent.

to 10 per cent. for disinfecting and deodorising purposes, and from a clinical standpoint can express my entire satisfaction as to its efficacy.

Creolin as Deodorant.

During the last few years I have often had occasion to examine the mouths of animals suffering from diseased teeth, from caries of bone, &c., in which the odour was extremely offensive. The objectionable smell clings to the hands for a long time, and is very unpleasant. No material with which I am acquainted so rapidly and perfectly removes this as a diluted solution of creolin, which has the further advantage of not rendering the hands rough and chapped as do solutions of carbolic.

Creolin as Dressing for Foul Wounds and as Deodorant.

September 15th.—Messrs. B. T. and Co. Brown gelding, seven years old. Case of "bastard strangles." A large abscess had formed in the parotid region about September 1st or 2nd, and in spite of every care had matured very slowly. The animal was scarcely able to swallow, showed high fever and great depression. On the above date (15th) I succeeded with some difficulty in giving exit to the pus, which was greenish in colour, grumous, mixed with shreds of dead tissue, and extremely offensive. The parts were irrigated with 5 per cent. creolin. For some days improvement was slow, and a second abscess appeared to be forming near the angle of the jaw. This was opened on the

20th, the parts were thoroughly washed out with 5 per cent. creolin, and orders given for the washing out to be continued night and morning.

22nd.—The offensive smell has disappeared, and although fragments of dead tissue continue to be discharged they appear mummified. By the

29th discharge had almost ceased, and both wounds were healing rapidly. Ordered creolin solution to be used once daily, and wounds to be dusted with boric acid.

October 5th.—Horse went to exercise. Both wounds healed. On each occasion I used 5 per cent. creolin solution to disinfect my hands. This entirely removed smell.

Foul Wounds.

July 23rd.—Grey gelding, aged (about sixteen or seventeen years), property of single-horse cabdriver. Ten days before the horse had fallen and broken both knees very

badly, the carpal bones of the off knee being in part exposed. The owner had fomented the parts with hot water for some days after the accident, and enormous swelling, with free discharge, had resulted. Owing to decomposition in the lacerated tissues and discharge a most penetrating smell existed, which the owner declared prevented his coming near the animal. I was unable to give any hope of recovery, but as this horse was the owner's only property he wished to try some treatment. I therefore gave him a few ounces of creolin, and directed him to dress the parts night and morning, and to apply, with gentle pressure, pads of cotton wool saturated with a 5 per cent. solution. When I next saw the animal, about a week later, the smell had gone and the wounds were much smaller, but considering it a waste of money to keep the horse, I advised slaughter. The horse was soon afterwards killed. Although the termination was unsatisfactory to the owner the use of creolin had attained its objects, viz. the removal of smell and (so far as was possible) the disinfection of the wound.

Canker.

September 13th.—Chestnut gelding, aged; property of Messrs. C. B.; suffering from extensive canker of both forefeet. The owners were unwilling to allow any radical treatment, and only wished to work the horse as long as he would prove serviceable. I therefore directed all loose horn to be removed, the exposed surface to be wiped dry and dressed daily with pure creolin.

18th.—Discharge and smell somewhat less. Treatment as before.

22nd.—Discharge diminished, very little smell. Horse to be shod for work, a special seated shoe with removable leather sole being employed. Feet are now dressed every third day with creolin, the foot filled with clean cotton waste moistened with tar, and the leather applied. The disease does not, up to date of writing (October 17th, 1896), appear to have made any further progress.

Thrush.

During the last three months I have treated several cases of thrush by washing the parts, dressing for one or two days with 5 per cent. watery solution of creolin, and when the discharge has ceased dressing lightly with 20 per cent. of creolin in methylated spirit. The cases have done well.

Offensively Smelling Fæces.

August 30th.—Brown mare, the property of H. C., confirmed crib-biter. Stableman complains of the offensive smell caused by fæces. Dispensed six balls containing 1 drachm each of pure creolin in common mass. One to be given night and morning. After the fourth dose the smell greatly diminished; six more balls dispensed.

September 6th.—The stableman reports great improvement. Mare appears better in condition, and I am informed does not crib-bite to the same extent as before.

Pulmonary Vomicæ; Offensive Breath.

July 17th.—Chestnut mare, six years old, property of Messrs. C. and W. This mare about March last had a severe attack of pneumonia, followed by stinking prune-coloured discharge from nose. At the time I suggested her being slaughtered, but owners objecting she was kept. Diagnosed necrotic fragment of lung and formation of vomicæ. Cough was very severe and painful, and from time to time small fragments of dead lung tissue were discharged from the nose. After fever subsided animal very weak. Prescribed iron salts, quinine, stimulants, &c., and medicated inhalations. Various materials, such as eucalyptus oil, creasote, &c., were used, but failed to affect the smell. The discharge afterwards became thick and yellow. Early in June the animal was put to light work, but was objected to on account of the smell of her breath being noticed by riders in cab. On above date suggested trying gargle containing creolin. A 1 per cent. gargle was therefore dispensed, and the animal received three times a day an amount equal to 1 drachm of creolin. Under this treatment the smell so far diminished that by 23rd the mare returned to work. The administration of creolin was continued every third or fourth day. Owing to fresh attack of pneumonia the animal died about September 25th, or would otherwise have proved an exceedingly interesting case.

Grease.

For some years it has been my practice to employ a 3 to 5 per cent. solution of Jeyes' fluid or creolin for removing the offensive smell of "grease." When the disease has attacked extensive areas I advise the application for twelve to twenty-four hours of a large warm bran poultice moistened with 3 per cent. creolin, after removal of which the parts are thoroughly cleansed with warm water, using a sponge, and dried. The special dressing

(Zinci Sulph., Plumbi Nit., A. Sulphuric. Dil., &c.) is then applied. In less extensive disease the parts can be sponged once or twice a day with 3 per cent. creolin.

DOGS.

(These experiments were in part directed to proving whether creolin of the strengths ordinarily used was or was not poisonous to dogs, and therefore were not always continued until a cure was effected.)

Demodectic Mange.

July 19th.—Rough-haired Irish terrier, weight 15 lbs., has a number of bare spots varying from two inches in diameter along back, some of which have been rubbed and are covered with dry brown scabs. The inside of both thighs shows minute reddish-brown dry scabs; the skin is reddened. The skin behind both ears has been scratched raw. Diagnosed demodectic mange.

3.50 p.m.—Dressed affected parts with 20 ounces 10 per cent. solution of Jeyes' fluid containing 2 ounces crude fluid, applied with smart friction for five minutes.

3.55 p.m.—Dog runs about violently, rubbing against straw and on floor.

4.10 p.m.—Quieter. Lying huddled up under straw, coat steaming.

4.30 p.m.—Decidedly dull. Does not feed.

5 p.m.—Brighter, has eaten some meat since last observation. Coat becoming drier.

6 p.m.—Coat nearly dry. Nothing peculiar observable.

8 p.m.—State quite normal.

Healthy (*test for toxic symptoms*)

July 23rd.—Mongrel Manchester terrier, weight 14½ lbs., temp. 103°, healthy.

3.25 p.m.—Was dressed over entire body with 12½ oz. of 3 per cent. creolin prepared two days before. Total creolin present 3 drachms. Rubbing continued briskly for ten minutes.

3.35 p.m.—Bright and cheerful. No apparent effects. Temp. 103·4°. Shivering.

4 p.m.—Bright and cheerful. Eating. Temp. 102·6°.

4.35 p.m.—As before. Temp. 101°.

5.35 p.m.—Coat nearly dry, otherwise as before. Temp. 101·8°.

7 p.m.—Dry. Temp. 101°.

11 p.m.—Temp. 100·8°. Seems quite comfortable.
24th.—9 a.m., as before. Temp. 101·6°. Perfectly well.

Follicular Mange.

August 13th.—Fox terrier, about four years old, weighs 16 lbs., well nourished. Follicular mange of neck and chest. Dressed affected parts thoroughly with mixture of creolin 1 part, soft soap 1 part, and methylated spirit 10 parts, applied night and morning, and rubbed in for five minutes. About 6 ounces of this solution (representing ½ oz. pure creolin) were applied on each occasion. After four days the skin became sore and the treatment was interrupted.

20th.—Treatment resumed for three days.

23rd.—Animal washed and dressed with iodide of sulphur ointment. Throughout the whole period of treatment with creolin the patient was closely watched, but no sign whatever of toxic effects was observed.

Fleas.

August 17th.—Skye terrier, about three years old, weight 9 lbs. Infested with fleas. Treatment adopted was daily dressing with 2½ per cent. creolin solution (about 15 ounces, containing 3 drachms creolin, was used on each occasion). After two days the animal was washed, and on the 20th the treatment was resumed in order to test the action of the solution. Sawdust was given as bedding.

26th.—The patient was discharged cured. No bad symptoms were at any time apparent.

Large Granulating Sore.

August 27th.—Old pug-dog had been scalded with boiling water ten days before, and in consequence of owner's treatment large sore, about 4 inches by 2, had formed on back. When seen this was granulating freely. Prescribed dressing with 2½ per cent. creolin-lanolin ointment. This seems very grateful to the animal, which had previously appeared to suffer considerably from irritation due to contact with the air.

September 4th.—Wound now only about 2½ inches by 1½. Is healing both from the sides and from small islands of skin, previously overlooked, near centre.

12th.—Cicatrisation complete. The hair has not yet grown over a large portion of the surface, and some parts will remain permanently bare, but this is invariably the case after severe scalds.

HEALTHY (*to test toxic action*).

September 12th.—Short-haired black and tan mongrel, Weight 17 lbs. Healthy.

3 p.m.—Temp. 101·6°. Was dressed with 12½ ounces of 5 per cent. solution of creolin (containing 5 drachms pure creolin), rubbed in for ten minutes.

3.10 p.m.—Slight signs of irritation. The skin is becoming dry, and is steaming slightly. My hands tingle a little, but are not at all sore.

3.20 p.m.—Dog quiet, appears quite bright and cheerful. when walked is perfectly steady on hind limbs, and shows no tendency to roll. Temp. 102·6°.

3.30 p.m.—Condition normal. Walks and turns round steadily. Temp. 102·6°.

5.45 p.m.—As before. Appetite good. Temp. 101·4°.

9 p.m.—Bright, and barks on being disturbed. Temp. 101·2°.

13th.—9 a.m., condition normal. Temp. 101·6°.

DEMODECTIC MANGE.

September 27th.—Fox terrier mongrel puppy, two months old; 4½ lbs. Temp. 102°. Demodectic mange.

2.30 p.m.—Applied with brisk friction 2 drachms creolin in 4 ounces of water. Irritation shown before three minutes were over.

2.35 p.m.—Considerable irritation. Runs about stupidly, placing hind legs far apart and staggering somewhat.

2.40 p.m.—Whining loudly. On attempting to turn falls over and lies moaning. When urged, rises and walks hastily, but with rolling gait, and seeks out a corner to lie down. Temp. 96·2°.

2.50 p.m.—Semi-comatose. Violent twitchings of fore-legs and abdomen. Hind legs seem paralysed. Temp. below 95°. Thermometer fails to register. Body surface cold.

3 p.m.—Twitchings becoming feebler; dying rapidly.

3.17 p.m.—Dead.

Note on above Cases.—My general conclusions on the above in some respects agree with those recently published in the 'Journal of Comparative Pathology and Therapeutics,' viz. that in puppies, fine-skinned dogs with little coat, and in certain delicate and "in-and-in bred" animals, like toy terriers, it is unwise to apply more than from ten to fifteen minims of creolin, in the form of lotions, &c., per pound of body-weight. On the other hand, adult dogs are much less easily affected, and on strong mongrel adults I have applied as much as 40 minims per pound of body-

weight without any sign whatever of injury. I believe that 60 minims even would be quite well tolerated, while, if applied only to limited areas, strength up to 50 per cent. or even pure creolin is perfectly safe. Such tests belong, however, more to the domain of physiological experiment than to that of clinical medicine, and owing to the enormous variations in size (and therefore in skin surface as related to body-weight) of different breeds of dogs, their results must always prove exceedingly difficult to reduce to set formulæ.

It is certainly very desirable to know what dose of creolin will prove fatal under given circumstances; and there is no doubt that provided the solution be strong, and be applied over a large surface and for a long time and with much friction, it *will* certainly kill a dog; yet the admission is of little consequence, for the same is true of any other equally efficacious dressing, and in the case of many it is true *minus* one or more of the qualifications, while, in so far as answering the question of what is the minimum dose which will prove fatal under given circumstances, the experiments hitherto published must be regarded as far from final.

Even the length of time during which friction is continued alters enormously the toxic effect of a given application, so that while 30 minims per pound of body-weight is, in my opinion, a safe application, even for fox terriers, when applied with only sufficient friction to bring it well in contact with the skin, it may readily produce toxic symptoms if applied with severe and continued friction. Again, I am of opinion that creolin once absorbed into the system is only very slowly excreted, and therefore that a given strength per pound of body-weight, though perhaps innocuous on the first application, may become distinctly toxic if reapplied at too frequent intervals.

A further factor to be kept in view is the condition of the skin. Frequent washing removes the thick layer of epidermal cells and the cutaneous secretions normal to the dog's skin, and strongly favours the absorption of any dressing which may be applied. Owing to its being emulsified in a resin soap creolin itself acts in the same way, so that on each fresh application not only has one to reckon with the material which has previously been absorbed, but with the fact that the conditions for absorption are becoming more and more favorable. This again modifies the conditions of the experiment, and renders the laying down of hard and fast rules almost impossible.

Personally I believe it is true of creolin, as of many other drugs, that certain individuals and certain breeds of dogs are specially susceptible to its action, and that the only safe course to adopt in each case is to commence with a strength well within the limit of safety (say 10 minims per pound of body-weight), gradually increasing it until the desired effects are produced, or until symptoms appear which demand a cessation of that particular treatment. The really reliable remedies in canine skin diseases are so extremely limited in number that it would be in the last degree regrettable if, for any reason, an otherwise desirable material were discarded on account of an objection which applies with equal truth to every known drug.*

COW.

Tympanites.

The only cow on which I have had an opportunity of trying the effects of creolin was one which frequently suffered from tympanites.

October 2nd.—12 noon, cow much distended with gas. Stands with back arched, breathing heavily. Flank distended, and on being lightly struck gives forth a hollow sound. For the sake of experiment I ordered 6 ounces pure creolin to be given in 40 ounces of a mixture of water and treacle, equal parts. Mouth gag to be inserted.

2 p.m.—On my return found cow much easier. Had passed a large amount of gas by the mouth. Formation of gas seemed to have ceased, and breathing was quiet.

October 4th.—Was informed that the cow had had no return of bad symptoms, but that her milk tasted distinctly of creolin. A sample drawn on the spot certainly had a faint smell resembling that of creolin, but I could not detect the taste. This case is instructive as showing the large amount of creolin which bovines may take without injury.

SHEEP TICKS.

Being unable in my usual practice to test the value of creolin in dressing sheep, my experiments were confined to trying the effects of solutions of varying strength on sheep ticks (*Melophagus ovinus*). Fully grown sheep ticks are

* Messrs. Jeyes inform me that for use in veterinary practice they recommend "Jeyes' Fluid" in preference to "Jeyes' Creolin," the latter being specially prepared for certain medical purposes. They also wish to emphasise the fact that Jeyes' Fluid is identical with Creolin-Pearson, with which all the German experiments have been made.

killed in twenty to twenty-five minutes by a few drops of a ½ per cent. solution of creolin; in from fifteen to twenty minutes by a 1 per cent., and in eight to ten minutes by 3 per cent. By raising the temperature of the solution to about blood heat, plunging the ticks completely into the solution, so as to wet them completely, and then withdrawing them, these results are attained rather more rapidly.

CATS.

September 2nd.—10.30 a.m.—Sandy-coloured cat, with eczema and depilation along back and shoulder; age about three years, weight 7 lbs., temp. 101°. Twelve and a half ounces of 5 per cent. solution of Jeyes' fluid, containing 5 drachms of fluid, were well rubbed into the skin for ten minutes. During the process the animal showed considerable irritation, and there was a good deal of outcry and struggling.

10.33 a.m.—The animal has become suddenly limp, and no longer resists.

10.40 a.m.—Rubbing ceased. When set down animal staggers distinctly; pupil appears dilated; there is marked dulness and disinclination to move; at times the animal makes short runs of a few steps and comes to a standstill, mewing loudly.

10.45 a.m.—Almost complete loss of control over hind limbs. When forced to move cat rolls about and falls over on side. Spasms of the hind limbs are now setting in. Commenced washing in lukewarm water.

11 a.m.—Almost comatose; limp, can scarcely walk; involuntary twitchings, resembling those of hiccough, affect the whole of the abdomen, and become stronger as time advances. Wrapped warmly in hay and covered up.

1 p.m.—Appears almost dead, pulseless; pupil widely dilated; convulsions almost continuous, though becoming weaker; surface very cold; mucous membranes blanched; jaws firmly closed. Temp. below 95°. Gave 2 drachms S. V. R. in 6 drachms water. Has great difficulty in swallowing.

1.30 p.m.—Slight improvement. Does not eat.

5 p.m.—Distinctly improved. Is able to sit up (had previously been lying). The above dose of S. V. R. to be given every four hours. Appears likely to recover.

11 p.m.—Sits huddled up. Very dull. Refuses all nourishment. This condition continued almost unchanged until 9 a.m. on September 5th, when animal was discovered dead.

September 2nd.—10.40 a.m.—Tabby cat, about three years old, weight 9½ lbs., temp. 100·4°, has exceptionally thick coat,

well nourished and in healthy condition, except for attack of eczema similar to that of foregoing. Was dressed with 12½ ounces of a 5 per cent. solution Jeyes' fluid, containing 5 drachms of fluid, applied for ten minutes. Displayed considerable irritation.

10.50 a.m.—When released walks about unsteadily, mewing from time to time. Does not stagger so much as previous case.

11 a.m.—Rolls about very much when made to walk. occasionally falls on side, but at once recovers. Pupil dilated. Seems stupid and half blind. Was at once washed with lukewarm water and hard soap, and rubbed as dry as possible. Wrapped up warmly in hay and covered over.

11.15 a.m.—Very dull, sits with eyes half closed, shivering. Occasionally hiccough-like spasms. Refuses food. Temperature below 95°.

1 p.m.—Little change.

5 p.m.—Apparently worse. Shows slight convulsions, dribbling of saliva from mouth. This exacerbation of symptoms is probably due to the fact that the thicker coat has at first resisted penetration of the dressing, but during the subsequent washing has retained fluid, so that skin was not washed clean, and slow absorption is taking place.

11 p.m.—Still very dull. Has taken a little milk, but nothing else. No medicine given.

3rd.—9 a.m.—Still very dull. Coat becoming dry, body surface warmer.

1 p.m.—Ate a few small pieces of meat. From this time onwards improvement was continuous, until by—

5th.—Animal was again as usual. About ten days afterwards coat began to be shed very freely, and continued for two or three weeks.

17th.—3.30 p.m.—Black cat, about two years old, weight 9 lbs. 14 oz. Temp. 100°, normal condition. 12½ ounces of a 1 per cent. solution, containing one drachm Jeyes' fluid, were applied with friction for eight minutes.

3.45 p.m.—Animal shows irritation, tries to hide in dark corners, &c., pupil beginning to dilate. No staggering.

4 p.m.—Very restless, wanders about or hides for a short time and begins wandering again. Does not scratch nor cry out.

7 p.m.—Sits crouched up on hay, dull, refuses food and milk; does not scratch, however, nor cry out.

18th.—9 a.m.—Very dull, sneezes, refuses to eat or drink.

9 p.m.—As before. Has remained unchanged all day.

19th.—9 a.m.—Improved, but still dull. Drinks milk, but refuses to eat.

7 p.m.—Has just eaten some small pieces of meat.

20th.—9 a.m.—Apparently quite well. When brought into full daylight, however, seems rather dull, and is a little inclined to stagger. Eats and drinks. From this time onwards little unusual could be discovered.

October 2nd.—A heavy scurf is now being shed from skin, and coat is coming out. Coat continued to fall until about October 13th or 14th.

RABBITS.

By a fortunate chance I had placed at my disposal a number of rabbits which were suffering from loss of coat. As this destroyed their value for show purposes, I was allowed to make any choice I wished, provided I would endeavour to find some remedy for the condition. All the subjects used were of the kind known as Flemish Giant.

October 5th.—4 p.m.—Rabbit, weight 2 lbs. 4 oz., three or four months old, bright and in good health, temp. 101°. Was dressed with 3 ounces 1 per cent. Jeyes' fluid solution containing 15 minims of fluid, rubbed in for five minutes. No apparent change.

4.5 p.m.—Temp. 100°.

5 p.m.—Animal inclined to be dull, does not readily move, but when forced to do so appears slightly stiff in hind quarters. Does not, however, roll or fall to one side.

10.30 p.m.—Temp. 97·8°. Has been well wrapped in hay and kept in warm place. Now fairly bright; moves perhaps a little stiffly, but has full control of hind limbs.

6th.—9 a.m.—Bright, feeding freely, and appears normal. Temp. 100·6°.

7th.—9.30 a.m.—Perfectly recovered. Temp. 101·2°.

October 7th.—4.55 p.m.—Rabbit, weight 2 lbs. 2 oz. Temp. 100·8°. Was dressed with 3 ounces 2 per cent. Jeyes' fluid (prepared on 5th), and containing 30 minims "fluid," rubbed in for five minutes. Skin at first felt cold, but after two minutes' rubbing became very hot.

5 p.m.—Visibly affected. Can move, but stiffly, and quarters evidently somewhat paralysed; movements uncertain, tendency to fall sideways. After moving for two or three minutes seems to improve. Shows signs of irritation. Licking fore-feet.

5.5 p.m.—Now moving more freely. Temp. 96·4°. Wrapped warmly in hay.

5.20 p.m.—Temp. below 95°, so that the thermometer no longer registers. Spasms, as though attempting to vomit.

7.45 p.m.—Temp. below 95°. Body drying. Animal fairly lively.

11 p.m.—Temp. still below 95°.

8th.—9.30 a.m.—Again quite lively. Moves freely. Temp. 101°.

October 8th.—3.50 p.m.—Rabbit, weight 2 lbs. 1 oz. (the above three were all of one litter), bright and cheerful, feeding. Temp. 102·8°. Received infriction of 3 ounces 3 per cent. Jeyes' fluid, prepared October 5th, and containing 45 minims "fluid."

3.55 p.m.—When released took one or two hops and fell on side. Within two or three minutes recovered somewhat and could hop about, but with evident weakness of hind quarters. Temp. 95·8°.

4.20.—Can still run about pretty freely, and does not stagger so much as before. Temp. below 95°. Wrapped in cotton wool and hay.

7 p.m.—Stiffer and less inclined to move. Temp. below 95°.

11 p.m.—Body surface very cold to touch. Very difficult to move now. Temp. still below 95°.

9th.—8 a.m.—Very cold, quite incapable of moving hind quarters, can move fore-paws slightly, slight mucous discharge from nose; lies stiffly where placed. Posterior parts of body practically paralysed. Respirations 12. Temp. below 95°.

10 a.m.—Makes slight convulsive movements with fore-paws, hind quarters absolutely powerless. Respirations 11. Temp. below 95°.

12.30 p.m.—Dead.

October 9th.—3.55 p.m.—Rabbit, weight 2 lbs. 7 oz., bright and cheerful. Temp. 101·4°. Received dressing with 3 ounces 2 per cent. Jeyes' creolin solution (prepared on 7th inst.), containing 30 minims creolin.

4 p.m.—Slight stiffness of hind limbs, no rolling, animal sits up rubbing face with fore-paws.

4.30 p.m.—Little change.

5 p.m.—Fairly bright, runs with slight stiffness of hind limbs, but without rolling or falling. Temp. below 95°.

7 p.m.—Quite bright, runs about freely, stiffness almost gone. Temp. still below 95°.

11 p.m.—Quite active again. Body warm. Temp. 99·6°.

10th.—9 a.m.—Normal, feeding. Temp. 101·8°.

October 12th.—5 p.m.—Rabbit, weight 2 lbs. 4 oz., condition normal. Temp. 100·6°. Was dressed with 3 ounces 3 per cent. creolin solution, prepared October 5th, and containing 45 minims creolin.

5.5 p.m.—Temperature has fallen below 95°. Can still run about nimbly, but hind legs seem imperfectly controlled and overpass the front. Gait is clumsy. Shakes head and ears, and rubs sides of face with fore-paws, nibbles at sides. Wrapped in cotton wool and placed in basket.

5.20 p.m.—As before. Temp. below 95°.

9.30 p.m.—As before.

11 p.m.—Seems rather brighter. Feeding. Temp. below 95°.

13th.—10 a.m.—As before. Feeding. Temp. 99·2°.

4 p.m.—Can again move quite normally. Temp. 101°. Bright and feeding.

To discover what effect plain water would have when freely applied to the skin, two rabbits were dressed under identical conditions with above, except that water was used in place of creolin solution. The results were practically identical in the two cases, one of which is given below.

October 12th.—5.15 p.m.—Rabbit, weight 2 lbs. 2 oz.; condition normal. Temp. 101·4°. Rubbed for five minutes with three ounces plain water.

5.20 p.m.—No change in general condition. Temp. 102·2°.

5.35 p.m.—No change. Temp. 100·8°.

6 p.m.—Becoming drier. Temp. 101·2°.

7.30 p.m.—Nearly dry. Temp. 101·4°.

9.30 p.m.—Dry. Temp. 102°.

13th.—10 a.m., normal. Temp. 101·6°.

19th.—3.30 p.m.—Rabbit, weight about 2½ lbs.; condition normal. Temp. 100°. Was dressed with 3 ounces of a 5 per cent. solution of Jeyes' creolin, prepared on 14th October, and containing 75 minims pure creolin; rubbing continued for five minutes.

3.35 p.m.—Has some difficulty in moving. Does not roll,

but seems stiff, and cannot advance hind legs far at a time; stride seems shortened. Temp. 96·2°.

3.55 p.m.—Becoming drier; walks with slight weakness of left hind leg. Temp. 95°.

4.5 p.m.—Sits "bunched up;" dull; eyes half closed; pupil dilated; when forced to move seems very shaky on hind limbs. Continues, however, to move pretty freely.

4.15 p.m.—Rather brighter. Placed in box with hay.

4.40 p.m.—Very dull. Sits up, but is very stiff; cannot walk, but when forced rolls a little to one side or other without going forward. If pushed further rolls over. Can *just* recover itself when lying on side. Temp. still below 95°.

5.15 p.m.—Has fallen over in basket; breathing frequent and shallow; surface twitchings of entire body. Cannot move hind limbs at all, and has little power over fore.

7 p.m.—Hind limbs contract weakly when animal lifted; slight twitching of facial muscles; breathing very shallow; body surface cold; can make no voluntary movement. Pupil widely dilated; does not respond to light.

8.15 p.m.—Alive but scarcely breathing; pupil moderately contracted; small movement of facial muscles.

8.45 p.m.—Found dead. Pupil strongly contracted.

October 19th.—3.50 p.m.—Rabbit, weight about $2\frac{1}{4}$ lbs. Temp. 99°. Dressed with 3 ounces of freshly prepared 10 per cent. Jeyes' creolin solution, containing 150 minims pure creolin, rubbed in for five minutes.

3.55 p.m.—Body steaming. Temp. 100·6° (in this case the temperature appeared to *rise* for a short time instead of falling). Staggers slightly in moving. When inserting thermometer, sphincter ani and rectum seem paralysed, and offer no resistance to passage. Pupil dilated. Animal does not seem to see obstacles. Ran towards wet puddle on floor, and when just on it staggered back.

4 p.m.—Slight convulsive shivering attacks.

4.5 p.m.—Fore-limbs slightly and hind strongly convulsed. When trying to move falls on side, and cannot now stand. Lies either on side or on chest, with fore legs stretched out and hind limply extended. Temp. below 95°.

4.10 p.m.—Convulsions extending to muscles of face, head, and ears, smacking of lips, twitching of ears. No part of body seems still for long; contractions, however, are local and isolated, *i. e.* different parts twitch separately. Temp. below 95°.

4.15 p.m.—Twitching of nose, fore-legs, hind legs, and abdominal muscles now almost continuous, but very weak.

5.20 p.m.—Almost dead. Cannot move limbs, and only very faint breathing movements are visible at long intervals.
5.30 p.m.—Dead.

MAN.

In two cases horsekeepers engaged in the dressing of horses infected with tonsurans ringworm, mentioned in the early part of this report, have come to me for treatment. In both the disease was confined to the forearms. Round the base of each hair was a red angry aureole; the hair had in most instances broken off short just above the skin, and when viewed with a pocket lens appeared frayed out at the free end. The men complained of intense itching, especially at night. In each instance the disease yielded after treatment for a week or so with a 25 per cent. creolin-lanolin ointment and careful attention to cleanliness. I had not the same opportunity for closely observing these cases as in my own patients, but both men showed me their arms from time to time, so that there can be no doubt of their being ultimately cured.

Summary.

Briefly summarising the foregoing experiments, I may say that I consider Jeyes' creolin, and its less refined form, Jeyes' fluid, of undoubted efficacy under the following circumstances, viz.:

In the Horse.—As a dressing for ringworm, lice, and specific skin diseases; as a powerful deodorant and disinfectant for offensive discharges and unhealthy wounds; as a preventive of abnormal fermentation processes in stomach and bowel, and as an intestinal disinfectant; as a means of checking excessive pulmonary secretions, and as a pulmonary disinfectant; as a disinfectant for the destruction of disease germs in stables and infected places. The strength of solution advised and the mode of application are more particularly described under the various sub-headings.

In the Dog.—As a dressing for mange, fleas, and chronic eczema. Special precautions are required in dealing with small, delicate, and "in-and-in" bred dogs.

In the Cat.—I do not advise the use of creolin, nor indeed of any watery lotions whatever. I believe it is a common experience that cats tolerate very ill any treatment requiring thorough wetting of the coat, and I have on more than one occasion traced a fatal result to the washing of diseased cats with ordinary soap and water.

The use of creolin ointments would probably be open to less objection.

In the Rabbit.—Solutions of Jeyes' fluid and creolin up to 15 minims per pound of body-weight seem fairly well borne. I have found no marked difference in the action of the fluid and of the creolin, so far as their relative toxicities are concerned. In small, young rabbits, doses of 20 to 25 minims per pound of body-weight usually prove fatal within less than twenty-four hours. In larger, older animals the dose required would probably be higher.

In Fowls.—1 per cent. solutions, if applied as suggested, appear quite efficacious in destroying vermin without injuring the birds themselves.

In Sheep.—From the experiments made on sheep ticks, I should judge creolin in strength of 2½ to 3 per cent. to be extremely efficacious in ridding sheep of such pests.

In Man.—My trials of creolin in man were confined to two cases of Tricophyton ringworm. Though these, of course, cannot constitute the basis of any general deduction, they at least seem to indicate a possible valuable application of creolin.

In practice I have found creolin of great value as a disinfectant for—

(1) Instruments (strength ½ to 1 per cent.). Does not act on instruments like sublimate or carbolic.

(2) Seat of operation and operator's hands (strength 2½ per cent.). Does not irritate the skin like carbolic.

(3) In the form of gauze, creolin wool, &c., as a dressing for wounds after operation.

(4) General disinfection of stable drains. The deodorising effect is also very marked.

(5) In the form of creolin "distemper" (5 per cent.), for the distempering of infected stables after thorough cleansing has been carried out.

The disadvantages of creolin are—

(1) That solutions in water being opaque, instruments, &c., are less easy to find than in carbolic.*

(2) That, owing to the formation of an insoluble compound, creolin acts less readily in albuminous solutions. The same is, however, true in an even greater degree of sublimate.

(3) In concentrated solutions it renders the hands slippery. This is only the case where the strength exceeds 2½ to 3 per cent.

* Jeyes' Soluble Fluid, for immersing instruments, gives a *clear* solution.

Appendix.

Composition of Creolin.

According to Fröhner, the most important constituents of creolin are—

Ortho- and Meta-kresol, $C_6H_4.OH.CH_3$;
Xylenol, $C_6H_3.OH.CH_3.CH_3$;
Phlorol, $C_6H_4.OH.C_2.H_5$;
Chinolin, C_9H_7N;
Naphthalin, $C_{10}H_8$;
Anthracen, $C_{14}H_{10}$;

and other hydrocarbons. Of carbolic acid there are only traces.

Quantitative analyses show—
Kresol, 10 to 13 per cent.
Hydrocarbons, Naphthalin, &c., 45 to 55 per cent.
Resin, 25 to 30 per cent.
Bases belonging to the Chinolin group, about 3 per cent.
Ash (soda, &c.), about 2 per cent.
Water, about 5 per cent.

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3. Fröhner.—'Internationale klinische Rundschau,' No. 20, 1888. 'Berliner thierärztliche Wochenschrift,' 1889, No. 12. 'Monatshefte für praktische Thierheilkunde,' vol. i, part 1, 1889.
4. Billroth.—'Öffentlichen Schreiben,' "Warnung gegen der Carbolsäure."
5. Nussbaum.—'Intern. klinische Rundschau,' No. 10, 1888. Vienna.

ANNUAL REPORTS OF PROCEEDINGS UNDER THE DISEASES OF ANIMALS' ACT, 1894, THE MARKETS AND FAIRS' (WEIGHING OF CATTLE) ACTS, &c., FOR THE YEAR 1895.

The Board of Agriculture has issued its report as above for 1895, and we note with pleasure that the report of the chief veterinary officer (Mr. A. C. Cope) occupies the first place. In the section devoted to swine fever, we read "that the number of swine slaughtered in 1895 as diseased, or as a result of having been in contact or otherwise exposed to infection, amounted to 69,931, and 10,917 were reported as having died of the disease." As evidence that

the energies of the veterinary officers are not allowed to lie dormant, the number of sets of viscera forwarded for inspection "amounted to 16,434, and in 6567 instances lesions of swine fever were found." It will be noticed that a very large proportion of the specimens were free from swine fever, and this shows either carelessness on part of the inspectors or a too great readiness to pack off to headquarters the viscera, or what has been termed rather unprofessionally, "tripe." It would be as well in the future, and be to the benefit of the inspector, if he examined the viscera more carefully or made himself familiar with the lesions. It would also save the officers of the Board trouble and time, and keep down expenses.

"The search which was made during part of the year 1894 for indications of that disease of the heart which was referred to in the report of that year under the term verrucose endocarditis, was continued in the case of all hearts which have been forwarded during 1895. Upwards of 16,000 hearts were examined, and in 676 instances deposits were found within them; and it is a very interesting fact in connection with these deposits that they are almost invariably found upon the valves of the right side of the heart. On occasions when the circumstances have afforded a favorable opportunity for making an inquiry into the history of the animals affected with this disease, the veterinary surgeons who have forwarded the specimens have visited the farm or premises, and invariably reported that the affected animals have remained in apparently good health until a short time prior to death; that the only deviations from health during life have been a certain amount of purple or red discoloration of the skin and a disinclination to feed, and that these symptoms have been immediately followed by all those distressing paroxysms which attend upon cases of angina pectoris, and death has quickly followed. In no instances has the same disease appeared among the other swine which had been kept in the same stye or in association with the diseased pig."

The condition affecting the valves of the heart is seen in that disease of the pig known as Schweine Rothlauf, Rouget de porc, or swine erysipelas, and is characterised by the appearance of vegetations upon either the tricuspid or mitral valves. Professor McFadyean showed several years ago that it was due to an organism— a slender bacillus with a peculiar bottle brush like growth in nutrient media; but so far as we know the disease has not been transmitted. An interesting appendix is affixed to this

notice in the shape of a literal translation of an article in the *Recueil de Médécine Vétérinaire* for October 15th, 1896.

The organism of swine fever is stated to have been found, and we suppose it is McFadyean's bacillus, the same as was described in the proceedings of the National Veterinary Association, and in the report of the Swine Fever Committee. We see no reason to doubt the conclusions arrived at, which answer all the postulates laid down by Koch as required before any given organism can be claimed as specific of any disease. We do not think, as Crookshank does, in the recent edition of his work on "bacteriology," that the organism cannot yet be said to have been discovered, since no two authorities have found the same germ. As yet no one has attempted to disprove McFadyean's conclusions.

It may not be out of place to quote from the report of the Committee as to swine fever. "It is defined as a contagious and infectious disease of the pig associated with a necrotic and ulcerative condition of the mucous membrane of the intestine, the morbid condition being nearly always most marked in the large intestine.

"The disease of the lungs which occasionally accompanies the disease in the intestines is either collapse or pneumonia. It is necessary, however, to observe that in none of the experiments performed for the Committee was pneumonia produced either by inoculation with pure cultivations of the micro-organisms, or by feeding with the material obtained from animals suffering from swine fever.

"In very acute cases of swine fever the disease may prove fatal within two or three days, and then the only lesions present may be intense inflammation of the stomach or intestines, or of both; and in these exceptional instances a certain diagnosis cannot be made except by bacteriological methods. But it would appear from the experimental evidence that whenever a pig survives for more than a few days after infection, a careful examination immediately after death will disclose in connection with the alimentary canal, lesions that are so distinctive of this disease as to warrant a positive diagnosis."

These are facts the importance of which none will deny, but towards the end of the report another paragraph appears to which we desire to draw attention, as it may explain in part why so many specimens free from swine fever were forwarded to London.

"One of the most frequent errors made by veterinarians in the recognition of swine fever is their disposition to accept the plugging of the crypts on the ileo-cæcal projection, and in the Peyer's patch (a condition which is very common in perfectly healthy pigs), as being in some way due to or connected with ulceration. This error has probably arisen from two causes. In the first place these masses of secretion, besides assuming a circular form, are often very dark on the surface, and when in that condition they assume an appearance somewhat resembling a small ulcer; and another reason is that it is upon and near to this particular part of the intestines of the pig that ulceration is in cases of swine fever very commonly present. The question, however, as to their character can be very readily determined by applying pressure to the sides of the crypts, when it will be noticed that these cheese-like masses which are retained therein can be easily ejected from their sulci and the membrane below will be found to be perfectly intact and normal, whereas the dark necrosed centres of a swine-fever ulcer are generally very difficult to detach, and when removed the surface of the mucous membrane will present a raw and roughened appearance.

Accompanying the report are seven beautiful lithographed plates showing swine fever lesions in various stages, and a map of Great Britain showing clearly the distribution of the disease.

These are published to serve as a guide to those who are not familiar with the *post-mortem* appearances of the disease, and to "enable our *confrères* abroad to recognise the morbid appearance present in swine fever, and thus assist them in establishing the identity of swine fever in this country with diseases affecting pigs in their own country." May we be forgiven if we suggest that charity begins at home, and that the Board of Agriculture could not spend a hundred pounds to more advantage than by placing a copy of the report in the hands of every veterinary practitioner in the country. They would find their bread again even after many days.

It may be of interest to note the distribution of the disease. The number of outbreaks during 1895 amounted to 6305 as against 5682 during 1894, England accounting chiefly for the increase; but this is not to be wondered at, since pig-keeping is more common, other things being equal, than in Scotland. Somerset and the West Riding of Yorkshire have the unenviable notoriety of heading the

list, the outbreaks numbering from 401 to 658. Then follow Wilts, Essex, Suffolk, and Stafford, with from 201 to 400 outbreaks; Cornwall, Hants, Kent, Gloucester, Bucks, Worcester, Warwick, Northampton, Hunts, Norfolk, Salop, Cheshire, Lancashire, North and East Ridings of Yorkshire, and Durham, with from 101 to 200 outbreaks; Devon, Middlesex, Berks, Bedford, Leicester, and Derby in England; Glamorgan, Monmouth, Carnarvon, and Denbigh in Wales next with 51 to 100 outbreaks; Oxford, Surrey, Herts, Lindsey parts of Lincolnshire, Notts, and the Soke of Peterborough with 26 to 50 outbreaks; Dorset, the Isle of Wight, London, Hereford, Cambs, Rutland, the Kesteven and Holland parts of Lincolnshire, and Northumberland in England; Pembroke, Carmarthen, Brecknock, Cardigan, Montgomery, Merioneth, Anglesey, and Flint in Wales; Dumfries, Roxburgh, Wigtown, Ayr, Lanark, Edinburgh, Haddington, Renfrew, Dumbarton, Argyll, Perth, Kincardine, Aberdeen, and Elgin in Scotland with from 1 to 25 outbreaks. Forfar, of the Scottish counties, has the worst record, the outbreaks numbering between 26 and 50. Radnor, in Wales; Cumberland and Westmoreland, in England; Kirkcudbright, Selkirk, Peebles, Berwick, Stirling, Clackmannan, Kinross, Fife, Inverness, Banff, Nairn, Ross and Cromarty, Sutherland, Caithness, Orkney, and Shetland, The Outer Hebrides, and the Isle of Arran were free. It is interesting to note the immunity of Radnor, of Cumberland and Westmoreland, of Kirkcudbright, Selkirk, Peebles, and Berwick, in the Lowlands of Scotland, and of Stirling, Clackmannan, Kinross, and Fife in the Midlands. The disease, with the exception of Elgin, does not extend north of Argyll, Perth, and Aberdeen.

Pleuro-pneumonia.—One centre alone was discovered in Great Britain, though the port inspectors discovered no fewer than twenty-six cases in cattle landed from various countries. Five were in cattle from the United States, two from a Canadian port, one from the Argentine Republic, the remainder from Australia. The very fact that twenty-six cases were discovered in imported cattle is sufficient to induce the Government to keep a vigilant eye upon the ports of entry, and thus to safeguard the stock at present in the country.

Anthrax maintains the even tenor of its way: 434 outbreaks were returned; 934 animals were attacked, or nearly two for each outbreak. The report states that there has been little variation in the prevalence of the

disease for the last decade, the highest in any one year of the number of cases being 1300, the lowest 401.

Foot-and-Mouth Disease.—No outbreak of this disease has been recorded in cattle, though in the medical papers one in a boy in Glasgow has been reported. On another page we draw attention to the alleged discovery of the organism, a microbe that has hitherto baffled detection.

Glanders or Farcy.—An increase during 1895 as compared with 1894. It is suggested in the report that the use of mallein has facilitated the diagnosis, and that the increase is to be accounted for by a more ready appreciation of the disease when this valuable reagent is used. In other words, mallein discovers glanders or farcy in those subjects which, previous to its introduction, would have escaped detection. An embargo upon horses imported from countries where the disease exists, and the compulsory use of mallein at ports of debarkation, will assist the eradication of the disease.

Rabies.—This disease is on the increase, and "the cases . . . reported in 1895 exceed in number those of any previous year since it has been legislated for by the department." This is lamentable and of vital importance to the public health, which is menaced by the great prevalence of this fell disease. 672 dogs were reported as rabid in 1895, as compared with 248 in 1894—nearly three times as many in 1895 as in 1894! It is high time more drastic measures were adopted, and a crusade should be inaugurated against all homeless dogs and those that run at large. The cost of the licence should be increased, and every animal should carry a collar with the name and address of the owner. We expect much sentiment and gush will be poured forth, but as it comes mostly from hysterical old ladies, of both sexes, it may be unheeded. Better a thousand dogs perish than one human being suffer from hydrophobia! It is to be hoped that the Board will deal with this disease and the animals that disseminate it in no half-hearted fashion.

As to its prevalence and the parts of the country affected, we analyse the map included in the report. Lancashire and the West Riding of Yorkshire claim a bad eminence, they account for between 129 and 308 outbreaks; Middlesex and Cheshire come next with from 31 to 60 outbreaks; Surrey with 16 to 30; Stafford and Durham with 11 to 15; Kent, Northampton, Derby, Northumberland, with from 6 to 10; East Sussex, Hants, Berks, Bucks, Herts, Warwick, Hereford, Salop, Notts, Lincolnshire, East and North

Ridings of Yorkshire, and Cumberland in England, with Lanark and Stirling in Scotland, accounting for from 1 to 5 outbreaks each. Wales is free; so is Scotland with two exceptions above; and with respect to England, the majority of cases come from Lancashire, the West Riding, and Cheshire in the north, and Middlesex and Surrey in the south. It is seen that rabies is most common in the populous districts where more dogs are kept, and where more dogs exist for which no licence is paid. If every dog wore a collar or some token whereby his owner could be discovered, the homeless and stray dogs could soon be weeded out; but if, as has been argued, a dog got away from home without his collar, it would be hard for the owner that he should lose his dog. Of course it would, and rough on the dog too, but those brutes that get away from home unobserved and without their master's knowledge are the very dogs that require the attention of the authorities, for they are mostly workers of mischief, and every one knows that the animal that has worked some depredation that has rendered his owner amenable to the law is never claimed. The authorities should without delay purge our streets of all homeless, wandering, and unregistered dogs.

Sheep Scab.—According to the report this is the most widely disseminated of all the diseases legislated for. Note the last two or three words, how careful Mr. Cope is not to put "contagious" disease, but "diseases legislated for." Sheep scab affected some 48,663 sheep, and only Berks, Dorset, and the Scilly Isles in England and Wales were exempt; whilst this side the border, Clackmannan, Cromarty, Nairn, and Selkirk alone remained free.

The statistics and quotations given above show that the report is one of great interest and worthy of study; the plates render it still more valuable for reference and comparison with specimens that may come to hand, or as an educating medium for those to whom swine fever is rare or unknown. If the Board of Agriculture would distribute copies to the profession of publications such as these, the work of the Board would be facilitated, and the Department would receive both directly and indirectly such assistance as it from time to time undoubtedly requires.

As an appendix to the Report on Swine Fever, and more especially that portion referring to the heart lesions, we give a translation of the following "Note on Urticaria of the Pig," by Ries. "I refer to the disease termed by

French authors *d'échauboulure* (a rash or pimple or blotch). When treating of this affection, Friedberger and Fröhner say 'that a fatal termination is scarcely ever seen;' but it is true that elsewhere, when speaking of the diagnosis of *rouget* (swine erysipelas) the same authors remark that 'after death the blotches take on a rhomboidal form.' In my district, where urticaria is very common, a fatal termination is by no means rare; 8 to 10 per cent. of the affected die from obstinate constipation. The mean duration of the disease is from four to five days or from nine to ten, when death results. Where urticaria is so prevalent the geological formation shows argillaceous schists; water is scarce during fine weather; young pigs are fattened during summer and autumn in the most primitive of styes. The urticaria observed does not show itself by buttons, but rather by erythematous patches as large as a shilling. These may become confluent, they may remain clearly defined, and appear as flattened blotches. Resolution or desquamation is the sequela; in the latter case pellicles, brownish or blackish crusts, are met with. In simple cases the patches become pale and flaccid, and gradually disappear.

"For some years I have sought for the causation of urticaria, but up to the present it has escaped me. The two cases I relate below may perhaps assist me. I should state further that the diagnosis of urticaria is of import from a sanitation point of view, pneumo-enteritis (swine-fever presumably) and rouget (swine erysipelas) being now scheduled in most European countries.

"Case 1.—Porket, aged seven months; depressed, sluggish, not feeding. For several days it has not touched its food; takes no notice of the pig-feeder. On the ears and thighs, under the belly, a diffuse redness is seen, which slowly increases in intensity, and which resembles exactly the subacute form of rouget. For four or five days the patient lies buried in his litter, can scarcely be moved; the tail hangs pendulous. Out of the stye he turns up the soil, drinks water, and takes any green food offered to him. The respiration is slightly accelerated; the rectal temperature oscillates about 39° C. Death supervenes at the end of eight days.

"Severe rouget has not been observed in the locality for a very long time; no other animal of the piggery has been ill, save one that had an eruption like urticaria six or seven weeks previously of a severe type, and which did not spare the patient.

"On *post-mortem* examination, the mitral valve was found changed into a rough, warty mass, much broken up, the size of a small hen's egg, and sufficient to fill almost the left ventricle. Sectioned, the surface of the growth showed a hard, dense white centre, surrounded by a zone closely resembling 'grey induration,' and upon this grey zone are villous processes and warts, which give to the lesion the characters of *endocardite verruqueuse*.

"Case 2.—Porket, five months old, single occupant of a well-kept stye, in which it is cared for by a poor peasant woman. One fine morning the pig did not appear at the usual time for his food. Several hours later the body was observed to be entirely covered by the blotches of urticaria. The disease remained for five or six days, at the end of which the appetite returned, and all the usual signs of good health. Nevertheless, during the weeks that followed the owner maintained that something was wrong with her pig, as it did not thrive so well as formerly. Seven weeks after the disappearance and apparent cure of the urticaria the appetite again became capricious; the patient remained on the straw, in which it lay buried; its respiration was increased, but there was no cough; fæces scanty, but still of a pasty character. A slight diffuse redness appeared in the ears and belly, and death took place several hours after a terrible paroxysm, during which the patient uttered deep grunts, and attempted to climb the walls, and then fell dead. The patient was ill ten days during the second attack.

"The *post-mortem* examination showed an unique lesion of verrucose endocarditis localised upon the mitral valve. The mass of new tissue was the size of a large nut. The chordæ tendineæ bound it down to the ventricular wall."

We have ventured to give this account *in extenso*, as the symptoms retailed to us are the same as those mentioned in the report, and which we have quoted above. It will be observed, however, that in these two cases the new formations were upon the mitral valve, whereas the majority seen at the laboratory of the Board of Agriculture were situated on the tricuspid valve. It appears to us that further light requires to be shed on this form of pig disease and swine erysipelas clearly differentiated from urticaria, if the two cases are indeed urticaria and not swine erysipelas. Practitioners would do well to take special note of any manifestations that appear out of the common, and follow them up by a *post-mortem*, if cirumstances permit; for it is only by obtaining the authenticated history of a

sufficient number of cases that we can ever hope to be able to draw definite conclusions.

INTRODUCTORY ADDRESS DELIVERED AT THE OPENING OF THE ROYAL (DICK) VETERINARY COLLEGE.

By Finlay Dun, Esq.

(*Continued from p.* 784.)

Agriculturists and veterinarians had long recognised that cattle were subject to chronic non-suppurating swellings appearing on the jaws, in America aptly styled lump-jaw; on the tongue, constituting wooden tongue, and occasionally in other regions. They were regarded by various authorities as osteo-sarcoma, scrofulous or epitheliomatous. Similar swellings had also been observed in the fauces and on the udders of swine, and occasionally in human patients. Professor Bollinger, of Munich, after a series of investigations, in 1876 demonstrated that these tumours were caused by a ray-like fungus, consisting of colonies of actinomyces. These bacteria are found to thrive outside the animal body on straw and other herbage, and thence attach themselves to any abraded skin or mucous surface. Bollinger's researches thus made clear the nature of this hitherto obscure disease, showed the identity of several maladies, the relationship of which was not suspected, indicated how they are communicated, and also how they may in great part be prevented, and in many cases successfully cured.

The history of these minute pathogenic fungi has been well entitled 'the Romance of Medicine,' and no chapter thereof is so full of startling episodes as that relating to tetanus or lock-jaw, common, as you are aware, in horses, occasional in cattle and sheep, and sometimes occurring in human beings. Until within a few years wounds of certain textures, especially when healing tardily, were thought to lead to tetanus. But in what manner these deadly tonic spasms were developed no one knew. Nor was it realised why horses were specially liable; why the disease prevailed in certain localities; why in human patients it was so frequently connected with injuries of the hands and feet; why lambs a few days old were occasionally attacked; or still more wide-spread seizures followed from

castration. These and other problems connected with tetanus have gradually been made clear. In garden and other soils, and in the dust accumulating in stables, the tetanus bacillus occurs in such numbers that water filtered through such soils or through stable dust becomes so impregnated with the organisms, that when slightly concentrated and injected into white mice,—which are specially susceptible to tetanus,—about half of them shortly die of the characteristic tetanus spasms. For a considerable time some links were wanting in the natural history of this disease. The bacillus was difficult to isolate. It could not be found in the tetanised muscles, in the nervous centres, nor even after a few days in the infected wounds. Shortly, however, it was discovered that, unlike the bacilli of anthrax or tubercle, the bacilli of tetanus did not pass into the circulation, but, detained at their portal of entrance into the body of their victim, they forthwith manufactured a deadly toxin, which attracted to the motor centres of the spinal cord produced the distinctive tonic spasms. But where, it may be asked, is the practical outcome of these bacteriological studies? Knowing that the tetanus germs are in our soils and stables, measures must be taken to prevent their being implanted on wounds or on the veriest abrasions. Any such raw surfaces must be protected from the ingress of such almost ubiquitous organisms, and treated antiseptically. Knives, needles, sutures, or other articles to be brought into contact with wounds, if dropped inadvertently on the ground, the manure heap, or the stable floor, cannot with safety be used until they are rendered aseptic. Practitioners and attendants who have been handling hobbles or casting ropes, or cleansing the dirty skins of patients, require thoroughly to wash and disinfect their hands before they touch wounds or delicate mucous surfaces. If such precautions were scrupulously carried out, tetanus following castration and other operations would be unknown.

But scientific investigations have provided still further protective measures. The deadly toxin passes almost unchanged through a porcelain filter, and can then be examined.

Strong healthy horses have been killed by injection of two drops. But very minute doses of the pure toxin, or a toxin reduced in activity by careful heating or dilution with weak iodine solution, when repeatedly injected in increasing amount into horses or other animals susceptible to tetanus, render them immune. Nocard, experimenting

with Roux and Vaillard in this way, so thoroughly immunised horses that they were injected with impunity with doses of active toxin which would have killed 2500 horses. The serum of the blood of such immunised horses, mixed with a lethal dose of toxin, or injected shortly after the toxin into animals sensitive to tetanus, antagonises the effects of the toxin. The serum does not, as was at first supposed, destroy the toxin, but it stimulates and energises healthy cells, and enables them to resist the action of the toxin. It is a case of intensified phagocytosis. This immunity being thus secured experimentally, the obvious question arose as to its being applicable practically. It had long been observed in various parts of France that tetanus prevails widely,—notably so in the north-western suburbs of Paris, where a large proportion of horses are affected after operations, or while suffering from nail wounds about the feet, quittor, cracked heels, and harness galls. Nocard, in December, 1894, recommended that in these localities horses receiving any wound, surgical or accidental, should, as early as possible after the injury, be injected in the neck or behind the shoulder with antitetanic serum, and the injection repeated twelve or fifteen days later. The immunised serum was absolutely harmless. In 375 animals thus protectively treated no tetanus followed, although it had prevailed in these studs in previous years, and attacked during 1895 several members which had not been protected. Employed amongst lambs in which tetanus appeared after castration, the antitoxin treatment within a day or two arrested further losses. But, effective though the antitoxin injections are in preventing tetanus, they have no power in arresting the disease when its symptoms have appeared. During sixteen to forty-eight hours of incubation the intoxicant influences working unchecked, the nerve cells of the cord are steadily and fatally implicated. Much the same effects occur in rabies. Pasteur's antirabic toxin ensures protection if injected into dogs before they are bitten by a rabid dog, or before they are inoculated with a poisonous dose of rabies poison, or when injected within a few days thereafter. But the antidote, if its injection be too long delayed, has not time to impress its resistent influence on the phagocytic cells before the nerve-centres succumb to the deadly action of the rabies poison.

These marvellous disclosures of minute agents playing such mighty diversified parts in the *rôle* of the universe are cheering triumphs in the earnest search after truth.

"Light has shone out of darkness." Secrets of the earth, erewhile said to be past finding out, have been wrung from her. The kings and high priests of science, with good purpose, have zealously obeyed Solomon's inspiring message, and "applied the heart to know, and to search, and to seek wisdom, and the reason of things." Or as Tennyson in the "Two Voices" expresses it,

> "Through novel spheres of thought,
> Still moving after truth long sought,
> Have learned new things.
> * * * * *
> Thus grows the day of human power."

With earnest training and improved microscopes, with culture plates, staining materials, microtomes, and other ingenious appliances, they have studied these ubiquitous micro-organisms, have learned the life history of many species, have demonstrated how some varieties—deadly foes of man and beast—may be vanquished, and out of their virulent remains have prepared protective vaccines and sometimes even effectual cures.

Bacteriological researches, the countless discoveries in the experimental sciences, and the genius of the age for turning knowledge to practical use, as already stated, have contributed to the progress of preventive medicine. Very similar progress, depending on similar causes, has in recent years increased the efficacy of curative medicine. The domains of physics, chemistry, and botany have been laid under contribution to obtain agents which facilitate diagnosis, and remedies which arrest suffering and ward off death. Clinical thermometers, stethoscopes, and more recently the phonendoscope, are gifts of the present generation. Tuberculin and mallein with almost unerring certainty respectively discover tuberculosis in cattle and glanders in horses, which no clinical observation or skill can detect. The Röntgen or X rays, penetrating skin, muscles, and soft parts, present distinct skiagraphs of bones, enabling the surgeon to determine whether he has to deal with a dislocation or a fracture, disclosing the precise position of any fracture, foreign body, or morbid growth. The discovery is still too recent to realise the further uses to which it may be applied. Sir Joseph Lister the other day remarked that the rays in passing through the soft structures stimulated them, and might accordingly be applicable for curative purposes. Improved sanitary surroundings have greatly helped the treatment of disease. Competent professional advice is generally more readily

obtainable, thus securing more successful results. Treatment is not generally so heroic, haphazard, or empirical. In Professor Dick's day I have seen ten or twelve horses bled in this college yard during a forenoon,—colic cases so treated with the idea of abating spasm or preventing enteritis, lung diseases with the notion that fever would be lowered and the attack cut short. Full doses of tartar emetic and hellebore were given in chest complaints,—not all of them of an acute type. Tincture of aconite was used more frequently and freely than now. Influenza cases in horses were drugged with nauseants and depressants, and sometimes several quarts of blood also abstracted. No wonder that appetite and strength steadily failed, that typhoid, pneumonia, and purpura supervened, that recoveries were tardy, and mortality high. Until well on in the fifties, it may be noted that the same pulling-down treatment was pursued in the practice of human medicine. In justification of such measures it has been urged that both men and animals in those days were of more robust constitution, and could better stand such treatment, while diseases were of a more acute type. It may well be asked, as of old, "Were the former days better than these?" Modern medical teaching recognising that disease usually depends on faulty action of weakened injured structure, instead of reducing measures aims at conserving the natural powers. The practitioner, whether of human or veterinary medicine, has more faith than of old was given to the recuperative powers of nature. He deprecates undue interference; he pays strict attention to healthy environments and good nursing; he eschews violent remedies, or uses them with much caution; he does not slavishly adhere to old formulæ set down as appropriate for any particular disease; he recognises that individual cases manifest specialities of type, and cannot be treated on procrustian principles; he endeavours to counteract untoward conditions as they arise, and to anticipate and prevent complications. The practitioners of to-day may, without arrogance, declare with the Psalmist, "I understand more than the ancients." Some of you may even attain the still higher position proudly assumed by King David—"I have more understanding than all my teachers."

The old system of polypharmacy is abjured, and instead of six or eight ill-assorted, often incongruous or antagonistic drugs, one or two medicines with definite appropriate actions are prescribed. As an American authority humorously puts it, what is the object of giving drugs that fool

around and don't know what they are wanted to do? The instructed graduate knows the physiological actions of the medicines he uses, realises what he wants them to do, and carefully selects those suitable for the special service required. Considerable progress has been made since the day when it was pessimistically said that there were only three positively ascertained facts in connection with the curative action of drugs—that quinine cured ague, that sulphur cured itch, and mercurials cured syphilis. The scope and also the success of remedial treatment is steadily increasing. The armoury with which veterinarians encounter disease has been largely and usefully extended. Chloroform and ether have been in use as general anæsthetics for nearly half a century, but cocaine has more recently been in increasing request as a local anæsthetic, especially in diseases and operations connected with the eye and throat, and with the mammæ and rectum in the smaller animals. Antiseptics, as already stated, are generally used, are essential in successful surgery, and are also being prescribed with some advantage in securing asepsis of the alimentary and urinary tracts. For regulating and controlling abnormal temperature of the animal body, quinine is now used with notable benefit, and a new group of medicines, many of them of the benzol series, comprising antipyrin, antifebrine, and salol, has been discovered almost during the present decade. Therapeutists have recently searched for and been successful in finding drugs that have definite actions capable of being applied to important uses. Apomorphine stimulates the vomiting centre, and without nauseating enters the stomachs of dogs, cats, and swine. Pilocarpine quickly promotes salivary, and in most animals skin secretion, and hence is particularly serviceable when the functions of the bowels or kidneys are impaired, while it also lowers abnormal temperature. Physostigmine stimulates intestinal peristalsis, and hence is sometimes of service in overcoming torpidity, displacement, and obstruction of the bowels, especially in horses. Potassium iodide persistently administered gradually arrests the development of the actinomyces fungus in wooden tongue. Improved pharmaceutical processes have produced more active and reliable medicinal preparations, and have separated alkaloidal and other active principles, and adapted these and other concentrated medicaments for hypodermic and intra-tracheal use—often of signal importance when immediate and powerful effects are desired. Antitoxins and the serum treatment, when their practical value has

been more fully confirmed, will doubtless be more used alike in the prevention and cure of disease.

I have endeavoured in addressing you to indicate the wide domain which your profession covers, its scientific and practical aspects, its manifold usefulness and capabilities, and the wonderful development and progress it has made during little more than a generation. In this age, pre-eminent for its progress in the scientific arts, veterinary medicine is bound to make further advances. The progress already achieved is but the stepping-stone and incentive to further progress. In no department have the limits of attainable knowledge been nearly reached. Practical as well as scientific observers can still find abundant subjects which will amply repay earnest study. You enthusiastic fresh recruits of the profession, you undergraduates here and in the other schools, will shortly constitute a considerable contingent of the profession, and must bear your share in its onward march. You start with the heritage of the accumulated knowledge of your elders. You take up the running where they leave it. You have wider, greater opportunities than your predecessors, even of the present generation, enjoyed. See that you make the best of these opportunities. You can do so if only you will be systematically painstaking and industrious. You have in your own hands the making or marring of your career, not only while you are at college, but throughout your professional life. You have the inestimable advantage of youth, when the mind is eminently receptive, when new things with reasonable assiduity can be quickly learned, when habits for good or evil may be formed, persisting throughout life. Solomon says, "The glory of young men is their strength"—strength to be increased, cultivated, fittingly applied. You have been endowed, as the Scripture saith, with "the hearing ear, the seeing eye," as well as the intelligent brain, in order to train, to cultivate, to use them for your own good and that of your fellow mortals. Seize the chances and the means of doing so. Let not your talents fade and wither for want of use, or be misapplied in useless or improper courses. The child is said to be father of the man. Quite as truly may it be declared that the capable diligent student makes the successful man. A boy at school may be idle and careless, he may have passed through six or seven years of fairly good teaching, and not show much for it. But when well through his teens, the young man should realise that playlarking and sport, or even perfunctory class attendance or

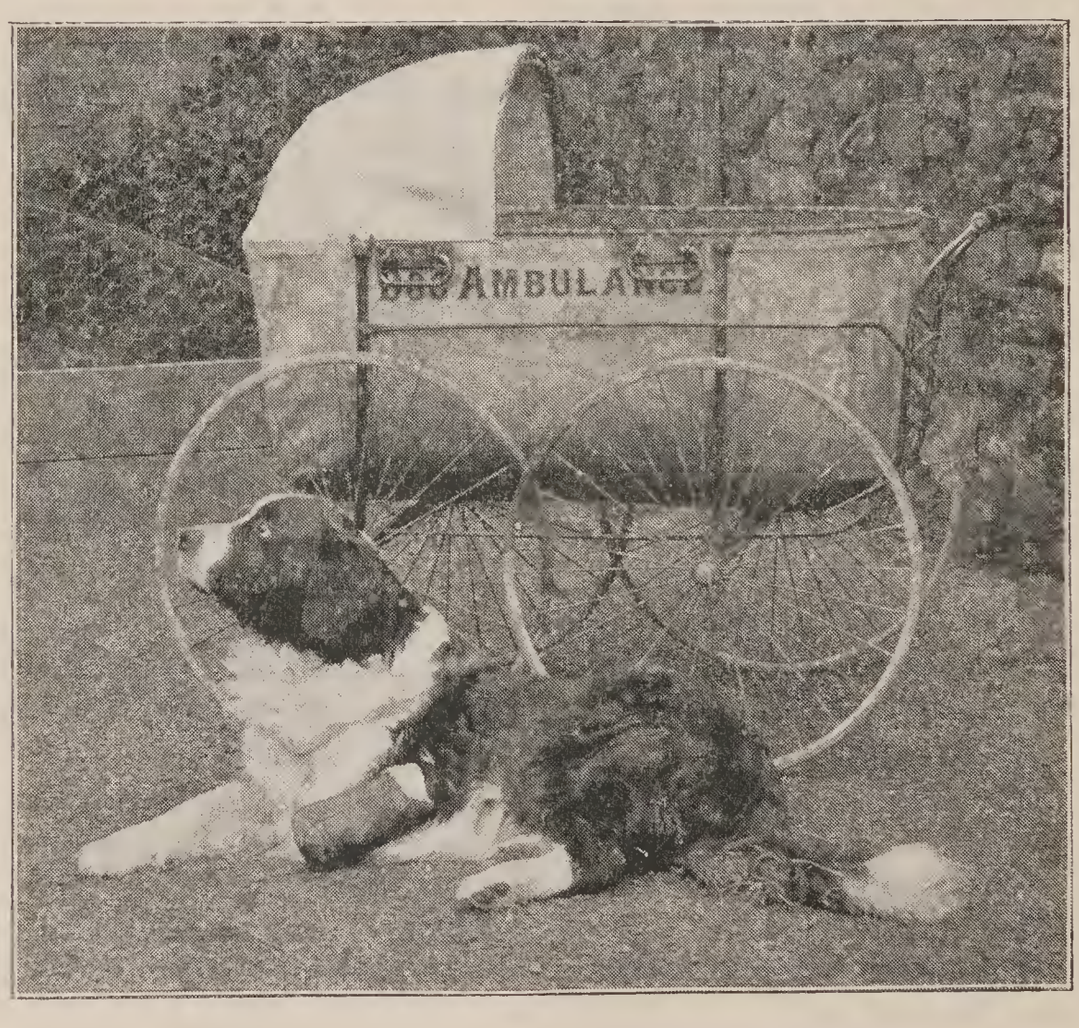
occasional desultory reading, will not pay. He should have sense to know that if he is to do his duty to himself, his friends, his teachers, his profession, he must buckle to and work seriously and systematically. If unfortunately he has not learned self-discipline and steady application while at school, his task here will at first be more difficult. He will find his memory fitful; he scarcely knows how to read in order to understand and grasp the subject matter; lectures he may be unable properly to follow, he will perhaps complain that they "go in at one ear and out at the other;" he has not the remotest notion of taking notes, but that is an art not to be acquired without considerable labour, humiliation, and practice. But such a young fellow must not be disheartened. If he will only "try and try again," he will steadily make up leeway. Such young men when Christmas is reached may be behind their more apt or better-trained fellow-workers. I have known both medical and veterinary students apparently failures for some months of their first session; but if they are made of the right stuff, and will work on steadily, they gradually recover lost ground. The man—especially the young man—is moulded by his environments. The average student now matriculating, if he will set to work at once, attend his lectures conscientiously, read up his text-books and notes systematically for two to three hours every night, and avoid making too many popular friends, in three months will find his tasks comparatively easy, will regard his evening hours of work no serious hardship; indeed, as time goes on, and he realises his growing power of mastering facts and surmounting difficulties, his work becomes congenial and pleasurable. Each year will find such a worker stronger and more capable, his accuracy of observation, his facility of acquisition, his methodical storing of more and more knowledge, his power of reasoning, will have grown surprisingly. His college curriculum successfully finished, is there any doubt of such a man's future career? His systematic training, his knowledge of his profession, his habits of study, observation, and inquiry, will give him all his life long a power, a character, and a standing which will command success. With health and reasonable patience it may with tolerable certainty be predicted that what he dares he can do.

AN AMBULANCE AND OPERATING TABLE FOR DOGS.

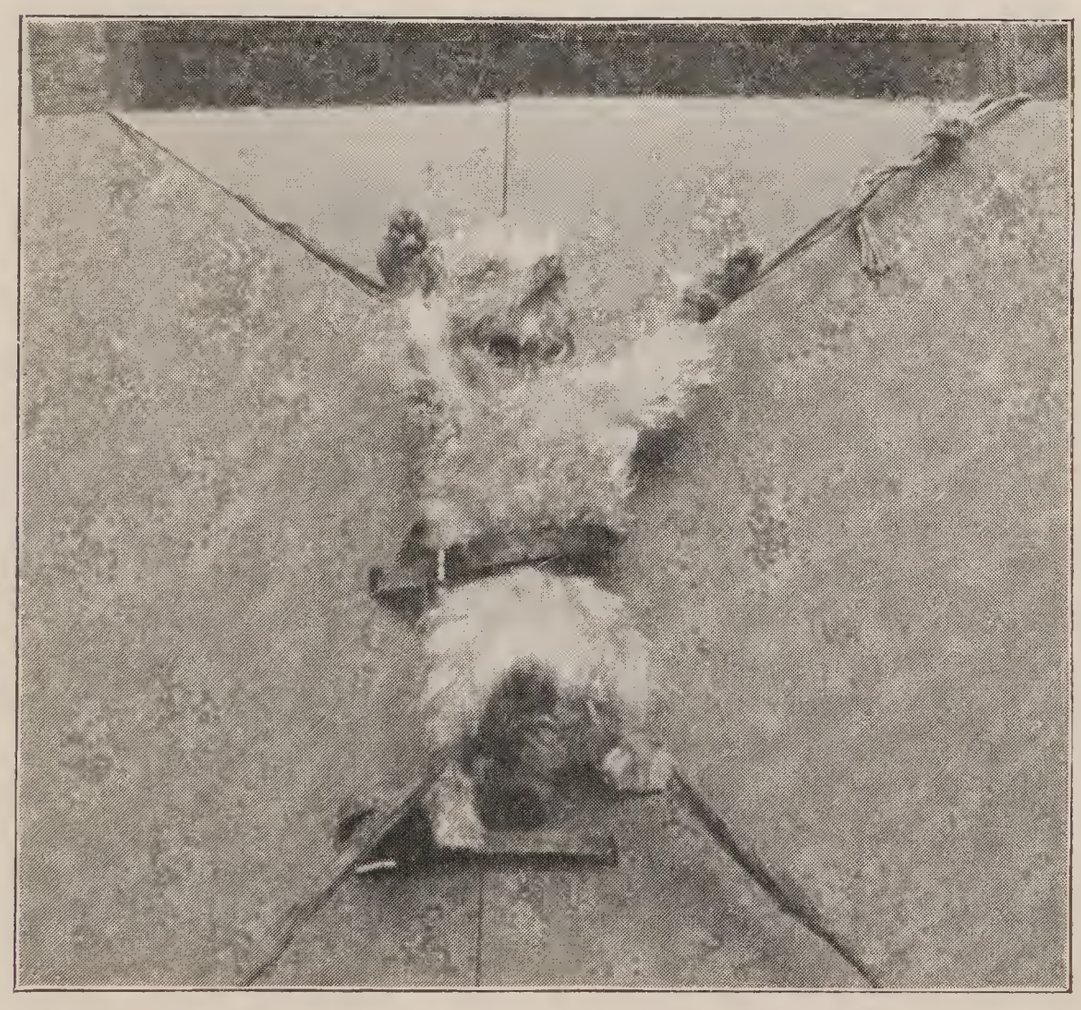
By B. P. Godfray, M.R.C.V.S.

The three photographs herewith should be of interest to all those who make the care of dogs a study. The first photograph is that of a dog ambulance. I have found it most useful in my practice; and should this picture be deemed fit, I am sure others will or should profit by it. The ambulance is made of steel, covered with canvas. It can be lifted off the carriage and carried, by means of handles fixed on either side, inside a house, or laid on the ground, to save the labour of lifting in a heavy dog, such as the Newfoundland in the picture. The wheels are rubber-tyred, and jolting is reduced as much as possible by the way in which the ambulance is hung.

The next picture shows my operating table. As I have never seen one like it, I thought it might interest members of the profession who have a large canine or feline

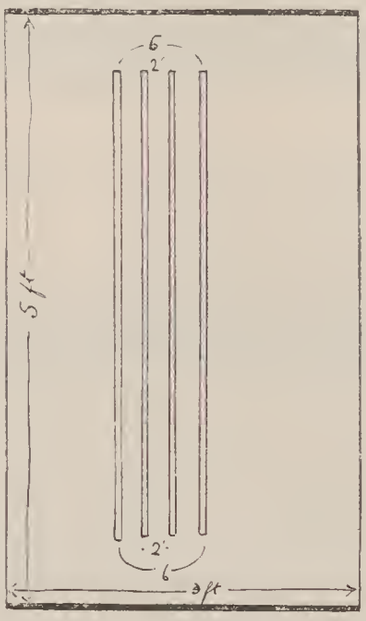


practice. I have found it invaluable in operating on cats; the animal is fixed so that it cannot hurt itself, and it is impossible for it to harm any one around it.



Photograph No. 2 shows a dog in the first position; each leg is hobbled, and three straps, one round the neck, another over the back, and a third over the loins, hold the animal secure. In this position operations can be performed on the mouth, throat, nose, eyes, &c. In picture No. 2 a bull-dog is represented as being secured for the removal of a tooth, Mr. Hobday's mouth-gag being almost a necessity in this case. The animal can be fixed on its side, when operation on the ear, amputation of limbs, &c., may be promptly carried out. The Newfoundland in the first picture had its left leg amputated by Mr. Voisin, M.R.C.V.S., of this island, a few days ago.

Photograph No. 3 shows a Yorkshire terrier fixed for castration. The table has been tilted up, to allow the photographer to show the animal in more detail. It is in castrating cats that we find this table so useful. Should



any of your readers wish to make a table on this plan, I would advise them to get what is known as a plain deal kitchen table, five feet long; in the centre cut four straight lines two and six inches apart, and underneath fix a piece of iron to render the whole solid; at the corner of the table screw in four brass hooks, on which to secure the hobbles, and the best operating table is made, and at a cost of less than one sovereign. So as to make myself more explicit, I make a rough sketch of the upper surface of the table.

I hope you will consider my explanations lucid enough, and that I shall be the means of benefiting the canine race and the members of the profession which make the dog their study. If I can give any further explanations I shall be only too pleased.

REMARKS ON CHLOROFORM ANÆSTHESIA.

By E. Wallis Hoare, F.R.C.V.S., Cork.

In order to judge accurately of the safety and utility of chloroform anæsthesia, it is necessary to possess ample experience of its employment under a variety of conditions.

Theoretical observations are, comparatively speaking, useless, unless we combine them with the information derived from practical work, and an unprejudiced mind is essential if our deductions are to prove of any value.

To some practitioners the production of chloroform anæsthesia in the horse is a very serious undertaking, this being the result of either a want of experience in its use, or from faulty methods of administration. Not only do they fear a fatal termination, but also they have recollections of a condition almost approaching a moribund one when the operation is completed. They are sceptical to the highest degree of the fact that of all living beings with which we are acquainted, the horse shows the greatest resistance to the toxic effects of chloroform, and that anæsthesia can be induced in him with the greatest facility and safety.

Now and again we hear it stated that the effects of the anæsthesia are far more detrimental to the animal than those of the operation, and many other random statements are issued by those who, to say the least, have little or no experience of the drug in question. In giving our opinion on the subject we rely on not only experiments with chloroform, but also in its employment in all surgical operations, and year by year we are more convinced of its safety and utility.

Experiments demonstrate the marked powers of resistance which the horse possesses to the toxic action of chloroform, provided a sufficient amount of air be allowed for the purposes of respiration. They teach us that if we desire to produce death in as short a time as possible, we must exclude air, and render the drug for inhalation in a pure state.

Again, they prove that the function of respiration is always the first to fail prior to a fatal result, and that this should be the danger-signal to be observed during anæsthesia. It is impossible to state definitely the amount of chloroform necessary to destroy an adult horse, so much

depends on individual susceptibility, on the method of administration, and on the rapidity with which the drug is inhaled. Large quantities administered at first produce violent struggling, and render the muscular system in a state of tonic rigidity. Respiration is greatly disturbed and accelerated, and the pulse quickened to a marked degree, and so long as this condition is maintained, there are no signs of anæsthesia apparent. If as little air as possible be admitted, it is quite clear that we have in addition the toxic effects of carbonic acid gas. When the struggling period is over, we observe that the respiration becomes very much affected. The respiratory movements become shallower and laboured, and stertor is distinctly audible. Although the respiratory muscles appear to be acting vigorously, it is apparent that the movements are very quick and shallow, and that very little air is drawn in and expelled. This is in marked contrast to the character of the respiration in the early stages, in which it is deep and paroxysmal. As the toxic effects of the drug continue, the respirations become irregular ; we have one deep inspiration and a series of shallow ones, gradually a period occurs between these, until finally the last respiration is taken, and the heart beats for a short period after death has occurred.

In some instances, a long tedious process it is to destroy a healthy horse with chloroform, from half to three-quarters of an hour being occupied, and from 10 to 20 ounces of the drug being necessary. In others death occurs in a shorter period if the administration of the drug be pushed at the commencement, and in one instance I observed in an aged cob, destroyed in consequence of incurable rheumatism, that death occurred in the space of twenty minutes with 6 ounces of chloroform ; of course air was excluded as much as possible.

In the majority of cases, a short time prior to cessation of respiration, there are involuntary movements of both fore and hind limbs. Here we must remark that although the healthy horse possesses a marked resistance to the toxic effects of chloroform, it by no means follows that in the case of debilitated subjects, or in extensive surgical operations, that we can be careless in administering this agent.

In spite of the opinion of high authorities that irritation and shock do not predispose to a fatal termination during full anæsthesia, we are convinced, as the result of extensive experience in operations, that shock and hæmorrhage pro-

duce a marked effect towards failure of the respiratory centre, and in whatever manner this is brought about, we know perfectly well that experimenting in a healthy horse and destroying him with chloroform, is a very different matter from administering the drug during a serious operation and endeavouring to avoid the occurrence of fatal symptoms. It is not necessary to enter into a discussion on this subject, further than to remark that care is necessary in administration if we wish to avoid the effects of an overdose and the appearance of serious symptoms.

But our experience of chloroform for surgical purposes in the horse is, that with ordinary care it is perfectly safe, and if we remember that our chief attention should be directed to the condition of the respiratory system, we shall seldom or never meet with fatal results. This being so, we are convinced that the system of administering the drug on a sponge, in a bag constructed so that little, if any, air can enter, is an irrational and dangerous one. It is our aim and desire to avoid anything which would tend to the condition of asphyxia; if, then, we exclude a proper proportion of air, and endeavour to make the patient inhale the pure drug, in addition to the carbonic oxide gas derived from his own system, we are treading on dangerous ground in the case of a long operation. At one time it was taught and believed that unless the above method of administration was practised, violent excitement would be produced in the patient and anæsthesia could not be procured. This, like many other dictums in veterinary science, has been shown to be erroneous, and we are now aware that the horse, like any other living being, should be allowed a proper proportion of air during chloroform administration, and the practice of semi-asphyxiation formerly resorted to is becoming obsolete.

We cannot lay down hard and fast rules for chloroform administration as regards the quantity of the drug required or the length of time involved. Much depends on the temperament and constitution of the animal and the nature of the operation. Nervous, excitable horses take a much larger amount than those of a tranquil disposition, and with the former more time is necessary, as the administration should be conducted slowly. Indeed, it may be laid down as a rule that the drug should not at any time be pushed freely, and if struggling occurs the administration should be lessened in degree, as when the animal

is in a highly excited condition, the chloroform vapour is either inhaled in too large a quantity at a time, or greater excitement is produced, which retards the production of anæsthesia. Grass-fed horses are much more quickly brought under the influence of chloroform than those which are stable-fed and in high condition. Colts are very easily acted on, and care is essential to avoid administering an overdose.

For the operation of castration it is neither necessary nor advantageous to induce deep anæsthesia, and practice alone will teach the operator when sufficient has been administered.

Having adopted the plan of administration with the apparatus made by Messrs. Krohne and Sesemann in a large number of colts for castration, we can speak with confidence of its safety and utility. By its use we cannot administer an excessive amount, and feel perfectly safe without the help of a skilled assistant. The chloroform vapour is diluted with air, so that a minimum amount of struggling occurs, while anæsthesia is produced in a steady and safe manner.

In long operations the anæsthesia can be continued without the dangers of an overdose, as by ceasing to work the bellows we stop the administration of the drug. The capacious size of the inhaler renders a proper supply of air for the purposes of respiration, and everything is arranged to avoid any tendency to asphyxia. Here we may remark that during hot weather horses are brought under the influence of chloroform in a much shorter time than in cold weather, and this is a fact worth attention.

To discuss the uses and advantages of chloroform in veterinary surgery should be hardly necessary in the present day. The subject is a hackneyed one, but nevertheless we meet with the most obstinate opposition to its use from many practitioners. The basis of the opposition is prejudice, and, as would be expected, this is strongest from those who have no experience of the subject. But can we be surprised at this when we read of the opposition which was offered to the use of anæsthetics in the early days of human surgery? The objections brought forward in veterinary practice are trivial and often amusing. The after-effects are particularly pointed out, while in reply we point to the fact that these are not worth mention, our experience being that on returning to the stall the animals look for food. When we castrate colts in the country, chloroform is administered in every instance, and the animals get up after

the operation and commence to eat grass as if nothing had occurred to them. These are plain facts that cannot be disputed. Another fact worthy of mention is that the owners of animals ask that chloroform be used, and we know of practitioners who previously objected to it, but now adopt it with success, and testify to its usefulness. Time will overcome prejudice, while an intelligent public will demand that veterinary surgeons must be experts in the administration of anæsthetics. Even leaving out the question of humanity, modern veterinary surgery requires this important aid, and who can tell what advances will be made in this direction in the future ?

Clinical Cases.

NOTES OF A FEW INTERESTING CASES.

By E. C. Winter, F.R.C.V.S., Limerick.

Tympanites of the Guttural Pouch.

A brown gelding, five years old, used for farm work, was operated on by me for tympanites of the guttural pouch in the early part of this spring. I saw the horse two years ago when he was untrained, and diagnosed the case as one of pus in the guttural pouch as a sequel of strangles. The owner declined to allow me to operate then, and I heard no more of the matter until the spring of this year, when the horse was with difficulty walked about five miles, to a town fourteen miles from here, where I have a branch practice. The poor brute was suffering acutely, and could neither eat nor drink, nor scarcely breathe, from the pressure on the larynx and pharynx by the distension of the pouch, or pouches, as I then thought, by gas. The owner had punctured the left parotid gland with a nail to try and give him relief some days before, and set up inflammation of the gland to add to his misfortunes.

I ordered the horse a couple of bottles of stout, which was got over his throat with difficulty, and sent him on by road here, giving directions to the owner to supply the horse's wants, as well as his own, at two villages along the road.

The poor brute was walked very slowly in, and refused all food and drink on arrival. He was drenched a few times with stout and gruel through the night and next morning, and cast for operation in the afternoon.

After clipping off the hair and sponging over the parts with an antiseptic solution, an incision was made in a vertical direction, above the parotid below the left ear, and the subcutaneous tissue broken down by the finger until the distended pouch was plainly felt, when it was opened with a scalpel. The air at once rushed out and the distension (originally the size of a "bowler" hat) disappeared, and the horse's breathing became normal. On lifting up the head I noticed that the distension at the off side had also disappeared; this swelling was only half the size of that on the other side, and must have been caused only by the pharynx and larynx, &c., having been pushed over by pressure from the near side. It had not the same tympanitic feel on pressure as the other side had.

After allowing the horse a few minutes to enjoy his newly-found freedom of breathing, I proceeded to get a dependent orifice by pushing a blunt curved sound into the wound and down under the gland, until I could feel it under the skin almost in the middle line of the neck. I then cut down on it, when a little dark-coloured fluid and some of the secretion of the gland escaped from the wound. The nail driven in by the owner had evidently gone clean through the gland into the pouch.

After washing out the pouch with a lukewarm solution of Hyd. Perchlor., I inserted a seton and a piece of drainage tubing, and allowed the horse to get up. On rising he enjoyed a drink of water and a bran mash with a relish that he had long been a stranger to. The wound was washed out daily with astringent and antiseptic solutions, but a discharge continued to come from the tube and flowed copiously whenever the horse was feeding. Whenever the tube was taken out for a few hours the pouch always filled again with gas, and the wounds showed a tendency to heal rapidly. I tried repeatedly to get an opening through the pharynx, but could not manage it, the Eustachian tube being evidently blocked up. I also blistered the parotid gland repeatedly, and tried to obliterate the pouch by injecting iodine and other agents, but the horse still wears a small drainage-tube through the pouch and works away contentedly.

Perhaps some of your readers with a more fertile brain

than mine can devise some means of doing away with the present condition of affairs without doing away with the horse.

Bovine Fœtal Monstrosities.

The patient in this case was a dairy cow in her third calf, and, as is usually the case in this district, all the "handy-men" in the neighbourhood had been called in before the veterinary surgeon, but could make nothing of the case, and finally a brother practitioner of mine was called on in my absence, but after working two hours at the cow he only succeeded in removing the two hind legs of the calf, it being a breech presentation.

The owner of the cow had previously declined to take out my assistant, declaring that he "knew a bit about cows himself, and that this was no young man's job." Finally, at 1 a.m. the owner called me out of bed, after having twice come a distance of ten miles for me, and declared he would not go without me, although I told him that it was very unlikely I could succeed after the other man had failed, and owing to the condition the cow would probably be in when I got out. He declared, however, that he would be satisfied if I went out and told him I could do nothing, and assured me that the cow was roomy and open and there was no difficulty in manipulating the parts.

On seeing the patient I found her very weak, and on examining the uterus she made no attempt to strain or even to rise. I then gave her a pint of whisky in a little gruel, and proceeded to do what I could for her relief. I found the tail and breech in the vagina, and the hind part appeared to be normal, but the fore part was enormously developed and not dropsical or tympanitic. I knew immediately I had a case of monstrosity to deal with, and proceeded to remove the forelegs, of which I found *six* attached to various parts of the thorax. After removing *five* fully-formed forelegs I attached a cord to the sixth, and got a hook firmly fixed in the fore part of the carcass. I then directed the attendants (whose name was legion) to pull on the cords, and getting my forefinger into the rectum and the breech well in the palm of my right hand, by a violent effort I got the fœtus turned round bodily in the womb and the fore part presenting. I now could feel two rudimentary heads and two pairs of ears sunk into the surface of the mass (for I can call it nothing else). The vagina being well distended, and the whisky probably

having a good effect on the cow, four men pulled away the fœtus without much difficulty. On delivery being effected the womb gradually and naturally contracted, and the cow appeared none the worse for her trouble, although she was thirty-six hours in all in labour.

The fœtus was evidently an abortive attempt of nature to produce three calves, as there were six forelegs, full size, attached to the under surface of the thorax; but I could only find traces of two heads, and those imperfect, on the upper surface. The hind part from the loins was normal, and the fore part of the body was in shape exactly like a large cheese. The cow did well, and, as the owner said, never "looked behind her."

The next case was one of "Ectopia cordis," with all four legs presenting and the head away up in the horn of the uterus. Owing to the cow straining violently in this case and to my having no anæsthetics with me I had great difficulty in examining her, the legs all being in the vagina, it being impossible to get any of them back, and the spine being evidently curved on itself laterally. I removed the two forefeet at the knees (the hind legs being further through the vulva), and getting ropes secured to the hind legs, I got a couple of strong men to pull sharply on them while I forced back the knees with my right hand. On the second attempt the fœtus came away with a jerk, and for some seconds I thought my right arm had gone too, so great was the strain on it. The owner of the cow, who was a sharp, quick-witted man, seeing at the first attempt that the cow and myself were being pulled with the fœtus, had thrown himself down with his feet to mine and his back against the wall, and acted as a fulcrum for me.

This case, although it lasted only half an hour, was one of the most difficult I ever had of the kind. It would have been impossible to perform embryotomy without an anæsthetic, as the cow was forcing violently, and I could not get the legs back into the womb. The case looked at first like one of double fœtation.

On the fœtus emerging from the vulva it immediately sprang back into the position it had occupied in the womb, *i. e.* the whole four legs together and the spine curved on itself sharply to the left side and the head away to the front. The ribs were flattened together, and all the thoracic and abdominal organs were outside the body in the hollow formed by the doubling-up of the spinal column.

On manipulation, before operating, I am certain I felt

the fœtal heart beat, and have every reason to believe the fœtus was alive then.

I trust those three cases may prove of interest to your readers, and that they will excuse the rough manner in which I have put a plain statement of the facts before them.

NOTES FROM CASE-BOOK.

By Frank G. Ashley, F.R.C.V.S., Bath.

Dropping of the Cud.

About three months since I was asked to attend a short-horn cow, four years old, in very good condition, and about half gone in calf. She was supposed to have been stung by a wasp on the left ear, which was lopped, and apparently swollen at its base. The cowman said it had been in this condition some days, but could not positively state if it had occurred suddenly or gradually, that he had bathed it with warm water every day, but there was no improvement. I could not detect any localised swelling, wound, or foreign body in the ear, nor could I trace it to any injury by tying up whilst being milked. The pulse, respirations, internal temperature, appetite, and secretions were normal; the patient chewed its cud, licked herself, gave usual quantity of milk, did not shake or carry her head to one side, and altogether appeared in good health. I thought it well to commence by clearing out the bowels, so gave

℞ Sodæ Sulphas, ℥xij,
Pulv. Anisi et Zingiberis, āā ℥ss;

and directed the following anodyne liniment be gently rubbed into the base of the left ear twice daily after bathing with warm water for twenty minutes:

℞ Lin. Saponis cum Belladonnâ.

Two days later I again saw this animal, and learnt the purgative had acted well, that the fomentations and liniment had been regularly applied to the ear, which was still in the same condition. I left some powders composed of

℞ Sodæ Bicarb., ℥j,
Pulv. Zingib. et Carui, āā ℥ss,

to be given in a quart of linseed gruel every day, and directed the same treatment be continued to the ear.

At the end of a week I again visited her, and found the ear in much the same condition, and learnt that she had been observed to occasionally "drop her cud," although there was no difficulty in prehension; that her bowels were irregular; that thirst had increased; that appetite was fickle, and that she was losing flesh. I now examined her lips, tongue, teeth, and throat both internally and externally, but could not find any cause for this new complication, so advised that she be not allowed out at grass, but housed and liberally fed with an entire change of food. Further, that one of the following powders should be given in two quarts of warm oatmeal gruel, morning and evening:

℞ Ammon. Carb., ʒiv,
Nux. Vom., ʒj,
Pulv. Cascarillæ and Gentian, āā ʒiv, fiat pulv.;

that the fomentations to the ear be discontinued, and the following stimulating liniment be rubbed into the throat, cheek, and base of left ear once daily until the skin became tender, when the use of the liniment was to be discontinued until the soreness had passed off.

℞ Liq. Ammon. Fort., ʒiv,
Ol. Tereb., ʒj,
Ol. Olivæ, ad ʒviij.

Some few days later I again visited this animal, and was informed she was no better, but if anything worse, as the dropping of the cud was more frequent; so I determined to stay and watch her. I noticed that she regurgitated the cud in a natural manner, that the mastication was almost entirely performed on the left side, and whilst this was going on a fluid dribbled almost continually from the left side of the mouth, and that just as she was about to swallow the re-masticated food a small pellet, composed of what looked like the fibres of chewed hay, dropped from the mouth, without her apparently being aware of it having fallen. I again examined, but failed to find any enlargement of the throat, nor could I detect any paralysis of the lips or facial muscles. There was no poking of the nose or cough when swallowing, the coat was staring, appetite very indifferent, bowels irregular, left ear still depressed, eye on same side retracted in orbit, eyelids partially closed, and tears discharging down that side of the face; secretion of milk much diminished, and the thirst was much increased. This, I thought, might be due to the loss of the liquid portions of the cud whilst masticating; but as the cowman frequently repeated, "She is constantly at

the water-trough," I was led to treat her for polydipsia, although the quantity of urine excreted did not appear to be abnormally large. I ordered the following twice daily, in a quart of old beer :

℞ Lin. Iodidi and Tinct. Opii, āā ʒiv,
Infus. Quass. Conc., ʒj.

and had some cobbles of lime put into the drinking-water. This treatment was persevered with for some days, when I found her generally improved, and learnt that she had not been observed to drop the cud for two days ; that she was now eating fair quantities of linseed cake, crushed oats, beans, and hay, occasionally licked herself, and did not exhibit such persistent craving for water. The left ear was still slightly depressed, but the eye appeared normal, and the skin was not so tight or the coat so harsh. From this time she continued to improve, and soon recovered most of the lost condition. Acrid vegetable plants were sought for with negative results in the pasture where this and three other cows had been grazing, and altogether I am inclined to regard the cause as some form of facial, lingual, or pharyngeal paralysis, and that the other symptoms of indigestion are dependent upon or caused by the loss of cud. Perhaps some of your numerous readers having an extensive cattle practice will be kind enough to give me and other junior members of the profession through the medium of these columns the benefit of their experience and opinion.

Cerebral Abscess.

During the past summer it has been my good fortune to meet with an undoubted case of the above, and I have ventured to forward a rough account of the symptoms with the hope that although they were not at all unusual they may prove interesting to some of your junior readers.

A four-year-old cart mare, in good condition, engaged principally for hauling purposes, was observed by the man in charge to be " off her feed," and was thought by him to have a sore throat. Some embrocation was applied and warm sloppy mashes offered ; these not having the desired effect, some febrifuge draughts were given, but as she appeared no better, professional assistance was requested.

On examination she was found to exhibit the ordinary symptoms of catarrhal influenza with depression of spirits. Nothing serious was at first anticipated, since many cases of extreme nervous depression are met with where the

animal has not been stopped from work at the commencement of an attack of influenza. She was placed in a roomy loose box, warmly clothed, some ethereal and ammoniacal stimulants were given, with the application of vesicants to the throat, &c., and as she did not feed, some nourishing gruel, milk, eggs, and whisky administered. This treatment was continued for some ten days, when she commenced to show symptoms of brain disturbance; she was then bled, a laxative administered, and cold cloths were applied to the poll, but she soon became very excitable, reared and plunged madly about, especially when handled. The drenching had to be discontinued owing to her falling backwards when the head was elevated. At other times she was depressed, and stood in one corner of the box with the nose nearly touching the ground, apparently half asleep. Occasionally she would take some food, and then suddenly stop masticating with the mouth half full, as if her reason had suddenly left her. Between the mad and sleepy fits she would wander round the box rubbing her head against the walls, as if only partially conscious and her eyesight defective. The bowels continued to act regularly, and at times she appeared quite rational. She, however, gradually got worse, although chloral and Pot. Bromide were given, and towards the end would savagely seize any prominent object, rear up, place the fore-feet in the manger, push the head high up into the corner against the roof of the box, then fall backwards into a sitting posture, propping herself up with the fore-legs, rush forwards and fall over upon her side. When walking round the box, which she always did with the near side of the head grasping the wall and knocking against the prominent parts, it was noticed that the hind-quarters rolled as if the power of co-ordination was interfered with. The pupils were contracted, eyelids nearly closed, lower lip pendulous, pulsations 60, internal temperature 102·4° F., and when not rushing about the respirations were undisturbed until the last stages, when she became perfectly delirous, and died in a mad state.

The *post-mortem* revealed an abscess about the size of a shilling in the left rami of the lower jaw without any external manifestations, and on removing the skull-cap, to which no signs of injury could be detected, the cerebral vessels were found much congested, and in the left cerebral hemisphere was a large abscess full of caseous matter. The other internal organs were apparently healthy.

There was no history of strangles or an injury to the

head, but there were cases of pyogenic fever in the immediate neighbourhood.

Ophthalmia in Dogs.

At the present time I have under treatment four dogs of different breeds and ages varying from three to six years, belonging to different owners. They are all in good condition as regards the flesh they carry, but all are affected with a very intractable catarrhal affection of the eyes. Usually one eye is at first affected, but in a short time the other exhibits similar symptoms, which are—a profuse, slightly greenish, sticky discharge that accumulates within, and occasionally agglutinates the eyelids. There is marked congestion of the conjunctival and sclerotic coats, patchy cloudiness, some ulceration, vascularity, and dark spots of pigmentation on the cornea, which appears specially implicated, and I am much afraid that in four of the eight affected eyes the disease is extending to the internal structures and will terminate in total blindness. There is consequently intolerance of light (photophobia), partial closure of the eyelids and apparent retraction of the eye in the orbit. There is no elevation in the temperature or any rheumatic symptoms present. One has moist eczema, which so soon as one patch is arrested breaks out in another part; the second patient was here some months ago for an affection of the eyes, and the owner of the third informs me his dog has had several similar attacks, and been under treatment for the same by the principal canine surgeons, who have failed to do him any permanent good, and that after a time the disease apparently disappears and nothing is seen of it for some months.

I have them in a dark box; fomentations are frequently applied. Various changes in their diet have been made, without any beneficial results, and solutions of the following remedies both singly and combined have been given a fair trial. Atropine, cocaine, Liq. Opii, Plumbi, et Aluminis, sulphate and chloride of zinc, nitrate of silver and boracic acid, dusting in of calomel, frequent dropping in of Ol. Ricini, and the application of dilute nitrate and red mercurial oxide ointment, coupled with the administration of a cathartic, Liq. Arsenicalis et Donovani, iron and quinine, cod-liver oil, iodide and bicarbonate of potash, and Hydrarg. cum Cretâ.

Had the patients been horses, one could have bled at the eye vein, setoned the cheek, and blistered behind the ears,

but with dogs I do not care to carry this out as some of them have to be closely watched after having their eyes dressed, otherwise they would greatly aggravate the affection by rubbing them with their feet or against the sides of the box, or by pushing their heads deeply into the straw beds. Although I have tried a so-called preventative collar, nothing that I have applied appears to have any power in arresting in four of the eyes this troublesome affection, which appears to me much like periodic or constitutional ophthalmia. Can any of your readers assist me with their experiences?

PASSAGE OF A FOREIGN BODY FROM THE STOMACH OF A COW.

By J. M. Sinclair, M.R.C.V.S., Moy, Ireland.

During the month of August last I was called to see a cow "which," the messenger said, "had a lump on her neck and could not swallow."

History.—The owner informed me that during the previous winter he had treated this cow for an attack of founder (?), and since then she had never regained her usual health. He further informed me that she was unable to take any food except a little thin gruel, and even this she swallowed with considerable difficulty and pain.

Symptoms.—On examination I found my patient, a fine dairy cow about six years old, greatly emaciated, hide-bound, a staring coat; pulse about 65; breathing somewhat hurried, and with an occasional cough. On auscultation and percussion I could detect nothing wrong with either her heart or lungs. About midway down the neck, covering the right jugular furrow and trachea on its lateral and inferior aspects, was a large pendulous swelling about the size of a man's head. On manipulation this was found to be quite soft, and evidently contained fluid of some kind. The animal walked with some difficulty, the right leg being carried forward very stiffly and with marked abduction. A close examination revealed a small enlargement on the pectoral muscles, underneath the right forearm, and about the fifth chondro-costal articulation, in size about as large as a hen's egg, very hard and painful; it was undoubtedly the cause of the stiffness and abduction of the limb.

Diagnosis.—I came to the conclusion that the enlargement on the neck was caused by repeated injury in the act of rising, as there was a large plank in front of the cow forming a sort of manger. The difficulty in deglutition I ascribed to the pain and swelling in the neck. As to the enlargement on chest wall I could offer no feasible explanation.

Treatment.—The animal being well secured, an incision was made at the most dependent part of the enlargement on neck, allowing the escape of an enormous quantity of a most offensively smelling sero-purulent fluid, containing masses of clotted blood and shreds of necrosed tissue. The cavity was then washed out with a solution of Potass. Permang. (1 ad 60) and a pledget of tow inserted to permit efficient drainage. Orders were left to have the wound cleansed twice daily, and hot fomentations applied to the enlargement on the chest-wall. A few days later I saw the cow, and found her greatly improved. The difficulty in deglutition was gone; she was now able to eat a little grass and take plenty of mash. There was a discharge of thick whitish pus from the wound on neck. The enlargement on chest wall was somewhat larger than at our previous visit, but much softer and still very painful. On incising it with lancet and inserting my finger to explore, I was greatly surprised to get a sharp prick. I seized the offending body and had no difficulty in its withdrawal. I found it was an ordinary darning-needle about three inches long, and instead of the usual polished appearance it had a dull metallic colour. After this the cow made a very rapid recovery.

Remarks.—I am still rather doubtful as to the cause of the enlargement on the neck, but am inclined to adhere to the opinion first formed, viz. that it was due to repeated injury in the act of rising. The course of the needle is interesting, as it is somewhat unusual to find a foreign body passing from the stomach to the thoracic cavity without in some way interfering with the pericardial sac or heart, and causing some almost characteristic symptoms, viz. irregular and intermittent pulse, dropsy of the dewlap, forelegs, and sometimes of the inter-maxillary space, and splashing and gurgling sounds on auscultation due to hydro-pericardium. The needle in this case probably penetrated the diaphragm from the reticulum and traversed the inferior border of the right lung, to gain exit at the point described without ever touching the heart or pericardium.

OBSTRUCTION OF THE BOWELS DUE TO A MIXED CALCULUS.

By Jno. M'Donald, M.R.C.V.S., Aberdeen.

Subject.—A twelve-year-old draught mare.

History.—Had been used for heavy lorry work for the last seven years by a large contracting company in town. She never had shown any symptoms of illness during the whole of that period.

On the 30th October she had had a sharp attack of colic. The attendant administered a colic draught and the symptoms passed away, only to return with increased severity in about twelve hours afterwards. She received another colic draught, also a physic ball. I was called in and observed the following symptoms: Dull, sleepy appearance, mucous membranes slightly injected, and of a peculiar yellowish tinge, a bad odour from the mouth, pulse 60, small and rather weak, respirations normal, temperature 101° F., appetite completely in abeyance, in fact she had not tasted anything since the first attack of colic. The acute colicky symptoms had passed off about half an hour from the time she received the second draught. Thinking I had a simple case of indigestion to deal with, I gave all necessary instructions to the attendant, and left with the intention of not seeing her again unless she got worse. On the night of the 2nd November I again saw her, and found her exactly in the same condition as I had previously found her, with the exception that the mucous membranes were of a darker hue, the pulse a little weaker. The medicine had not operated, despite the fact that she had had regular exercise and repeated rectal injections for the two days intervening. Small quantities of mucus-coated fæces had been passed now and again. She had been very quiet all the time, and had eaten very little. Having a doubt as to her receiving the physic ball as stated, I gave her another one, and left her for the night. Next morning we received word that the medicine was operating well, and she seemed keener and was eating a little. About three o'clock in the afternoon of the same day I was asked to visit the mare as she did not seem well. On asking when they first observed any change, I was told that she was last seen at twelve o'clock, and nothing was then seen amiss. Inquiring further if she had been purging badly, I found that she had passed nothing since nine o'clock, but previous to that the amount passed had

been very copious. While wondering at the abrupt termination of the purging, I came to the conclusion that there must be some mechanical obstruction. Proceeding to my patient, I found her thus: Standing with the fore-feet wide apart, nostrils dilated, with an anxious expression, breathing laboured, pulse imperceptible, heart's action tumultuous, at the rate of 105 per minute, could be distinctly heard while standing a few feet from the animal, well-marked spasm of the diaphragm manifested by the heart's impulse being felt along the loins, and a visible jerk in the left flank. Temperature subnormal, ears and extremities deadly cold, staggering gait when made to move, and foam hanging from the mouth. I gave a stimulant draught, and had her well clothed and made as comfortable as possible. She died without a struggle about a couple of hours after, having kept her feet till the last.

Post-mortem.—On opening the abdominal cavity the bowels were seen to be obstructed and enormously distended, with fluid egesta anterior to the obstruction. A large sacculated pouch or dilatation could be seen in the third part of the double colon, and about six inches posteriorly to this a large calculus could be felt firmly impacted and completely obstructing the lumen of the bowel. On exposing the interior of the bowel slight inflammation was found more or less all over, but most marked around the seat of obstruction. The calculus was egg-shaped and of the mixed variety, weighing 10 lbs. 10 oz. (5 kilos.), circumference 1 foot 9 inches, and length from end to end 1 foot 1½ inches. The liver was pale and friable.

Heart enlarged, weighing 9½ lbs., right side enormously dilated, walls thinned, marked incompetence of the right auriculo-ventricular valves. The capacity of the cavities was 125 ounces.

Remarks.—The most remarkable feature in connection with this case was the size of the calculus, and one might well wonder at the possibility of the animal living, thriving and doing her ordinary work for a period of seven years without the slightest manifestation of such a condition. Doubtless the sacculation in the bowel had facilitated the passage of egesta, otherwise the animal could not have lived so long as she did.

FRACTURED JAW IN COLLIE PUP, AND RECOVERY.

By A. S. Hodgkins, Assistant to Alfred Hodgkins, M.R.C.V.S., Hanley.

I do not think I need apologise for sending you these few remarks on this case, as I am not aware of ever seeing one similar to it reported in any of the journals.

History.—The patient, a valuable puppy, aged four months, was being taken for his usual evening run by his mistress about 6 p.m., when he ran into the middle of the road, and collided with a bicycle. He was brought to our infirmary the following day, July 29th, 1896, about 1 p.m., his jaw hanging down and his mouth full of blood, and he had not taken anything to eat since the accident happened. On examination I found that the lower jaw-bone was fractured vertically on the near side, between the canine and molar teeth. On informing his owner the result of the examination, she decided to leave him in our care.

Treatment.—After cleaning out his mouth, I placed the edges of the bone together, and put on him a leather muzzle, packed with wadding, and fastened it in such a manner that he was unable to get it off. He was very restless—it was the first time that he had been muzzled. The next question was how to feed him without disturbing the fracture. I had to resort to a piece of glass tubing, joined to a glass funnel (the same as used in chemical laboratories) by a piece of india-rubber tubing, and inserting the glass tube into his lip, poured milk through the funnel. He soon took to this method of feeding, and gave no further trouble. On removing the muzzle in a week's time I was pleased to see that the bone was uniting. I replaced the muzzle, and left it on for another three weeks' time, and on removal found that the bone was perfectly united, and he was discharged from the infirmary on August 26th, 1896, much to his fair owner's joy and to my gratification. Strange to say, I was asked to see another collie pup, same age, a fortnight later than the above, and on manipulation found that his jaw was fractured in exactly the same place, but the owner decided to have him destroyed.

A CASE OF SUPERFŒTATION IN THE BITCH.

By P. Marsden Oldroyd, Student, Royal (Dick) Veterinary College, Edinburgh.

Although it is a generally admitted fact amongst veterinary obstetrists that superfœtation is possible, and does occur in multiparous animals, the recorded cases of such anomalies are few and far between.

The subject, an eighteen-months-old St. Bernard bitch, the property of Mr. John Hampshaw, of Heckmondwike, Yorkshire, appearing in œstrum, was served by a St. Bernard dog on June 2nd. Fifteen days later she was noticed to be still in œstrum, and was again served by the same dog. On August 4th she gave birth to five pups, and on August 18th to another litter of three, which latter were dead and imperfectly developed. As the length of pregnancy in the respective cases corresponds to the intervals between dates of serving and gestation, it is only reasonable to credit the case as one of superfœtation.

THE MANAGEMENT OF "SEPTIC GASTRITIS" IN THE DOG, WITH AN EPITOME OF ONE TYPICAL CASE.

By Wm. M. Scott, M.R.C.V.S.

Fortunately for the dog this disease is of rather uncommon occurrence, probably due to the fact that the gastric contents can be dislodged in that animal with the greatest possible freedom. If it were not for this comparatively easy method of vomition, I think the canine surgeon would be called in more often to treat gastro-intestinal disorders in the canine species, more especially when one remembers the really noxious materials that often enter into this animal's bill of fare. Nevertheless, within the past two years I have come across five typical cases. I have used as a heading to this paper the word "management" in preference to "treatment," the former including minor details such as diet, nursing, hygiene, &c. &c., points which the latter does not grasp, but which are nevertheless essential in bringing a case to a successful issue.

Causes.—The most prolific source is undoubtedly the ingestion of putrid flesh or fish. Dead rabbits and game found in covers in country districts are often a fruitful

source. Septic gastritis is also, however, a concomitant symptom of certain specific diseases to which the dog is liable. This latter form it is not my intention to discuss, confining my remarks to that condition produced by the ingestion of deleterious matter.

Symptoms.—If the disease is noticed at the outset it will probably be ushered in by rigors and depression, pointing to functional derangement of the nervous system. A little later the temperature shows a tendency to rise, showing blood contamination, more particularly if the pulse is quick. Usually, however, when the veterinary attendant is called in the patient will have passed the initial stage. The temperature has probably gone up to 104° or 105° F., the breathing slightly accelerated, the pulse quick, weak, and of small volume. The visible mucous membranes of a dirty reddish-yellow colour, the muzzle hot and dry, the mouth dry and musty, the gums congested, the breath sickly and loathsome, the eye dull, the expression haggard and forlorn—the last especially noticeable in the more intelligent breeds. Great thirst is usual from the outset. In some cases a persistent standing position is the one favoured, in others the recumbent position, usually preferring a cold surface to lie on. Pressure over the epigastrium always gives pain. The abdomen tucked up; at times it may be pendulous owing to tympany. The bowels at the outset are usually constipated, which soon gives way to diarrhœa. The egesta emitting a sickly odour, and owing to its acrid nature each motion is often followed by prolonged tenesmus. Often as the disease advances, if it is at all severe, the fæces contain blood; vomition as a symptom is always present. The vomit may be mixed with blood or bile, or both, in which mucus always bulks largely. So much, then, for the symptoms in general. The following are a few details deduced from one of the most pronounced cases.

A well-bred, rough-coated black and tan collie was admitted to hospital with the following history. The day before admission he had been noticed dull and mopish; had vomited some small bones, probably those of a rabbit. (I may say in passing this dog is chained overnight, but occasionally he would slip his collar.) Had shown great desire for water; soapy saliva at times would be noticed coming from the mouth. On examination all the previously mentioned general symptoms were present. The diarrhœa was most profuse, his buttocks and tail were completely matted, the odour sickly, the pupils dilated, and he would stagger about as if intoxicated when moved.

Admitted into hospital on Tuesday morning at 8 a.m. Remarks in general:

Tuesday, 8 a.m. P. 138. T. 104·4° F. Great prostration; vomit blood and mucus; excessive thirst; bloody fæces passed.
5 p.m. P. 143. T. 106° F. Vomited once since morning; straining (prolonged) after passing fæces; keeps the recumbent position principally.
Wednesday, 8 a.m. P. 132. T. 103° F. Vomited through the night; condition critical.
1 p.m. P. 139. T. 103·1° F. } Passing bloody fæces containing
9.30 p.m. P. 130. T. 103·3° F. } curded milk; very weak.
Thursday, 8 a.m. P. 136. T. 103·1° F. A little brighter; laps cold water; anticipated a turn for the better.
12:30 a.m. P. 160. T. 105·3° F. Very prostrate; passes bloody, acrid fæces with prolonged tenesmus; eye dull and sunken; countenance anxious.
9 p.m. P. 135. T. 104·1° F. Not so depressed; takes more notice of the surroundings; abdomen tympanitic; bowels very active and straining.
Friday, 8 a.m. P. 144. T. 102·4° F. Considerably brighter; wags tail on being spoken to; occasional vomit tinged with bile.
9 p.m. P. 140. T. 103° F.
Saturday, 8 a.m. P. 130. T. 101·5° F. Hæmorrhage from the bowels ceased; takes more notice of things; partook of light nourishment for the first time voluntarily; vomiting checked.
7.30 p.m. P. 140. T. 101·3° F. } Slowly improving. At this stage
Sunday, 8 a.m. P. 132. T. 101·1° F. } had small doses of "Ingluvin."
9 p.m. P. 130. T. 101° F. }
Monday, 8 a.m. P. 132. T. 101·5° F. } Progressing favorably.
Tuesday, 9 a.m. P. 129. T. 100·4° F. }
Wednesday, 9 a.m. P. 128. T. 100·3° F. } Appetite greatly improved;
Thursday. P. 125. T. 101·1° F. } progress uninterrupted.

On the following Monday the patient was discharged cured.

Pathology.—Of the five cases which I have recorded in a collective style, the cause of the mischief in each (basing our hypothesis upon collateral and surrounding evidence) was the ingestion of putrefactive animal tissue. The question naturally here rises,—given the dog, which admittedly vomits with the greatest possible freedom, how is it that in some cases that voluntary act is not called into force, when the material ingested does in a given time upset the whole animal metabolism, and gives rise to such a train of complex symptoms? Can it be due to some peculiar idiosyncrasis of the patient itself, or can the explanation be ascribed to the ingested matter? Medicinally we are in the habit of prescribing a class of agents—"gastric sedatives"—in cases of irritable conditions of the stomach. Is it possible that the poisons liberated in the processes of

fermentation, &c.—*i. e.* ptomaines, leucaines, &c.—have a sedative influence primarily upon the coats of the stomach, so that the ingesta remain *in situ* till sufficient poison is liberated to produce systemic poisoning?

Consequent upon the growth and multiplication of the organisms of putrefaction poisonous toxins are formed, which have a corroding influence upon the gastric mucous membrane, producing small hæmorrhages; hence invariably we find bloody vomits as the disease advances. At the outset of the disease the liver is specially active, so that a large quantity of bile is thrown into the duodenum, which during the act of vomition is regurgitated into the stomach, so that the vomit often contains bile. All the while the deleterious material is passing on through the alimentary canal, spreading infection and causing irritation in its course. Consequently we note abdominal tympany and pain, acrid fæces passed, which will most likely contain blood. The liver becomes contaminated through the blood passing through it, till its secretory and excretory functions become annihilated; hence the visible mucous membranes show a yellow tinge.

Management and Treatment.—Dieting is of the greatest paramount importance. It must be remembered the stomach in its present state is totally incapable of digesting the majority of foodstuffs. Hence the selection should be made with the greatest possible care. Milk is a staple diet by reason of its sustaining powers and its bland action upon the coats of the stomach, but it too is apt to act adversely upon the patient. If not digested or too much given curds will be found in the fæces, and the simple fact of these passing through the alimentary canal should be sufficient for the veterinary attendant to alter his course. Peptonized milk should be given instead, or a little whisky added sometimes has a beneficial result. The milk may also be diluted with lime water.

In some cases, however, the stomach is so weak and the patient so prostrate that anything in the shape of nourishment given by way of the mouth acts detrimentally upon the patient by reason of the vomiting set up. In these cases rectal feeding is indicated. Of the other food materials, home-made beef-tea *minus* fat globules is a very useful accessory. Upon no account should solid foods of any sort be given.

Hygiene.—The surroundings are an important item to the successful piloting of these cases of septic origin.

Medicinal Agents.—Purgatives and febrifuges are to be shunned; the former for their uncertain results, the latter

for that they lower the temperature (which is not necessary unless the fever runs very high), depress the system, and are apt to disguise symptoms which might be looked for. At the same time, if the case has been seen early, a mild aperient may be given. Vomiting at the outset should not be checked, but rather favoured; if, however, it goes on, it must be combated by such agents as Sodæ Bicarb., bismuth, and hydrocyanic acid. If the patient is becoming exhausted, small doses of brandy might have the double effect. To check the diarrhœa, astringents and opium. Opium is apt to derange, however, what digestive power the stomach possesses. If straining after defæcation, a bland enema (starch) combined with such agents as opium and hydrocyanic acid is very useful. If bleeding from the bowels, Pulv. Ipecac. and opium are good, or Pulv. Opii and Plumbi Acet. every four hours. When heart's action is weak and the patient prostrate, such agents as alcohol, ammonia, and ether are indicated. Should the patient go on satisfactorily the recuperative powers of nature soon begin to assert themselves, and the patient will show indications that the appetite is returning. It is at this stage that great discretion should be shown. It is also at this stage I administered an agent (digestive) very kindly sent me by Messrs. Newbery and Sons, 1, King Edward Street, London, E.C., in one case with beneficial results. The preparation is, I believe, very largely used by American physicians successfully. It is derived from the crop of the fowl, its commercial term being "ingluvin." It is an admitted fact that the digestive powers after any acute disease are very much deranged; how much more, then, when the stomach itself is the primary seat of the disorder! It therefore behoves us to assist the stomach in these cases as much as possible. Pepsin by some has been lauded in these cases, but we all know the uncertainty which unfortunately overhangs that drug in its action. After the administration of ingluvin doses three times daily the patient seemed to pick up wonderfully, improving his appetite, and the food of which he did partake pointed to the fact that nature was making the most of it, so great was the change in his general appearance. The other case was placed under the "ingluvin" treatment earlier; in fact, it was had recourse to as soon as the more acute symptoms had abated. It was administered in milk combined with Sodæ Bicarb. and bismuth subnit.; small doses repeated often. Under this method of treatment the vomition gave way, the stomach became less sensitive, the abdominal

flatulency and diarrhœa disappeared, the fæces were less acrid, and the tenesmus passed off, while the appetite greatly improved.

Ingluvin is a greyish-yellow powder. It can be administered along with alkalies (if necessary) in such mediums as milk and beef-tea. Of course I am not in a position to over-laud the drug, by reason of my short acquaintance with it; nevertheless I have been so favorably impressed with its action that I shall certainly give it the preference when opportunities occur.

In the interests of science I should like any member of the profession who may come across similar cases to give the drug a trial, and publish his results in the veterinary periodicals.

DOG CASE: A STRAYED NEEDLE AND THREAD.

By Hugh Begg, M.R.C.V.S., E. Kilbride.

On July 28th a ladies' pet Dandy Dinmont was brought to my place by the gamekeeper, who reported that it had been retching and vomiting almost constantly for about twelve hours.

While I examined him the retching was very painful, ptyalism was excessive, and movement of his head downwards caused him to cry out in agony.

I suspected the presence of a fish-bone (for I was informed he had been eating fish) in the œsophagus behind and below the larynx. There was as yet no appreciable swelling, and compression of the throat did not greatly aggravate the symptoms.

A careful examination *per orem* with the help of a gag failed to reveal the cause of disturbance, and yet the slightest depression of his nose made him scream out with pain. I passed my horse catheter three times down into the stomach and met with little resistance, but the retching afterwards almost ceased, and I had a false hope that may be the cause of mischief was now in the stomach.

I ordered small doses of subnit. of bismuth and hydrocyanic acid, and a milk diet, with frequent fomentations to the throat, and allowed the dog to be taken home. Visiting the animal next day he seemed much better, but he was not quite right, and I was suspicious we would have more trouble with him.

Two days later I was telegraphed for, and found him

very ill, so I asked them to send the dog to my place to stay during treatment.

By this time a small circumscribed swelling was formed on the left posterior aspect of the larynx, very tender to touch.

I at once removed the hair and began to paint the swelling with tinct. iodine, and after three days he was so much better that for two days he took his food and exercise quite cheerfully.

He began now, however, to rub his throat on the ground or on any handy place when he got the opportunity, and so persistently did he do this that in thirty-six hours the lower part of the head, neck, and anterior aspect of the chest were involved in an enormous erysipelatous swelling, rendering the animal perfectly helpless. In two days more, during which time warm alkaline fomentations had been employed, the swelling had greatly subsided at its borders, while that over and below the larynx had evidently become liquefied.

So I laid the part open with lancet, and removed several ounces of a dark red fluid of a very fœtid odour.

I then introduced my finger to explore the abscess wall, when something sharp pricked me.

On bringing the lips of the wound over the foreign body I removed, to my surprise, with a pair of forceps, a sewing needle with nine inches of double thread attached.

I had the abscess syringed out twice daily afterwards with a weak solution of creolin, and in seven days he was sufficiently recovered to be fit to be removed home, and he has been all right since.

The needle was fully two inches long, and was very much blackened.

On exhibiting the needle and thread, and explaining the case to the owner, she was able to throw some light on the matter.

It appears that the dog had been in the sewing room the night before it was brought to me, and as it began to cough and salivate it had been expelled from the room, but it had not occurred to them to connect this circumstance with his nauseated condition next day, nor to mention it to me at any time.

The needle and thread had thus been lodged in the dog's throat for eighteen days.

THE VETERINARIAN, DECEMBER 1, 1896.

THE CAUSE OF RINDERPEST.

We observe in the *British Medical Journal* and in *Nature* that Professor Koch and an assistant are *en route* for South Africa, their mission being to find, if possible, the cause of the devastating plague. So far good; every one has a profound respect for Professor Koch, and all acknowledge his eminence as a bacteriologist and an original worker, but reports differ as to what Government is responsible for his journey. According to *Nature*, quoting from the *Pall Mall Gazette*, "they (Koch and his assistant) are being sent out by the German Government to inquire into the plague of rinderpest, and to report what measures are best, in their opinion, to prevent it spreading to the German south-west African colonies. The Cape Government is giving every facility to the Commission." To this we have nothing to say, save to re-echo the following, also from *Nature*, which is added to the above quotation, and which points out how systematically the home Government ignores the workers amongst its own people, and how it consistently ignores those who profess science in these islands:—"We were informed some time ago, by one upon whom implicit reliance can be placed, that some years ago, long before the devastating rinderpest crossed the Zambesi, the Foreign Office was warned of its serious nature, and it was pointed out at the same time that the proper step to be taken was to send out a competent man of science to investigate it, in order that some means might be found to stop it. The Foreign Office declined to take any action in the matter."

This is a tremendous indictment, and one which deserves immediate attention; for if an apathetic indifference has allowed a disease to spread that might have been checked in its incidence, some one has blundered, and blundered seriously. Perhaps, however, the powers that be had not sufficient confidence in a "man of science" from this country, and they had to seek abroad and find, after many days in Berlin, Koch. At any rate, read what the *British Medical Journal* for November 14th says: "Professor Koch, accompanied by his wife and assistant, Dr. Kohlstock, arrived in London on Thursday evening on his way to the Cape to investigate the rinderpest. In the course of a conversation with our representative, Professor Koch stated that he had undertaken his mission *at the instigation of the Cape Government*" (italics are ours).

Here, then, is the truth, for Koch must know who are his employers, and we are forced to admit that men of this country, who are quite capable of carrying out any of the contemplated investigations, have been passed over, and one found in Germany who can alone satisfy them. We are not inimical to Professor Koch, nor to his selection, for we recognise a common brotherhood of science that is superior to international jealousies; but we do resent the slight to the many able men at home who would have justified their choice, and who would have done loyal and real service to the State. Truly again, it may be said that "a prophet is not without honour, save in his own country;" and if for prophet "a man of science" be substituted, we have a wonderful commentary upon and an exact summary of the relations between the Government and science in this country.

THE RECENT MEETING OF COUNCIL.

The quarterly meeting of Council is usually devoted to important and varied business, often as varied, or more so than important. Indeed, the latter conclusion would be the more just in many instances. Among the many questions that busy the brains of our Solons in Council was that of affixing letters after one's name other than the magical and often mystic M.R.C.V.S. If any man should happen to be a member of a society (F.R.S. and F.R.S.E. are not counted, as we do not reckon one of the former in our midst, and less in number of the latter than the fingers on one hand) he must not put them either on his sign if he has one, or on his labels if he ever uses any, nor upon his certificate if he is ever called upon to write one out. If, however, he calls himself a professor years after he has ceased to be one, or a J.P., or a R.W.M., or a member of the I.O.G.T., he may do so and be classed among the fortunate, and nothing will be said to or of him; but let him call himself M.R.C.V.S. L. or F.E.V.M.A. without explaining what these symbols mean, then let him beware, because "an expression of opinion" has gone "from this Council that members of the profession should not use any title or any letters not granted by corporate bodies."

THE INSPECTION OF MEAT.

In the syllabus of the examinations of the Royal College meat inspection is included under Surgery, and occupies

such a position that the most generous can only conclude that it was inserted as an afterthought. Professor Dewar moved that the subject be included along with Pathology and Bacteriology, so that the subjects could be taught together and combined as an examination subject, certainly a closer relation than between it and surgery. But the wisdom of the Council decided it should remain as at present, doubtless believing it occupied its true position between surgery and obstetrics. If the last two had been reversed we might have read birth and death, and seen the force of the Council's decision, for the first step in the preparation of meat is a surgical operation; but to retain meat inspection as part of surgery, and without any explanation, is merely one of those acts of the Council that are too subtile for ordinary mortals.

The Month's Progress.

Physiology at the British Association.—We take from *Nature* the following notes of interest. Prof. Macallum, of Toronto, gave a short communication on a means of detecting the difference between organic and inorganic salts of iron. An absolutely pure solution of hæmatoxylin is turned bluish black in the presence of inorganic salts of iron, but is not so affected by organic compounds. If the organic compounds of iron present in any tissue—spleen, liver, &c.—are changed by suitable treatment with acid so as to produce inorganic iron salts, then the tissue stains very darkly with the hæmatoxylin, and is quite different in appearance from that which is produced by the same dye when no such inorganic salt is present. The views advanced by Bunge as to the introduction of iron into the system by means of organic, in preference to inorganic iron compounds, have resulted in the production of a very large number of so-called organic iron remedial agents. Prof. Macallum showed that a considerable number of these contained large quantities of the inorganic iron salts, which would be detected by the above method. The importance of possessing an easy and effectual means for differentiating between the two sets of iron compounds is by no means confined to the analysis of such remedial agents; a large number of physiological processes are intimately bound up with the transfer or the presence of iron, and the method of determining such an essential

character of its chemical relations may be employed in many physiological investigations.

A paper was read by Dr. J. L. Bunch on the nerves of the intestine, and the effects upon these of small doses of nicotine. The method of study was one in which a small portion of the intestine was suitably exposed and connected so as to record its movements. The following facts were brought out and illustrated by photographs of the tracings. (1) The stimulation of the peripheral end of the cut vagus nerve causes no motor effect as regards the portions of small intestine investigated. This is so not only with small doses of atropine to eliminate cardiac inhibition, but when the nerve is excited low down in the absence of atropine. (2) The excitation of the peripheral end of the cut splanchnic nerves may cause either contraction or dilatation of the portion of the intestine, but does not produce simple inhibition of its movements. These two facts thus seem to show, in opposition to the views previously held, that the vagus fibres play no part in the production of intestinal movements, and that the splanchnics contain augmentor and depressor fibres for the intestinal neuro-muscular mechanism. Further researches as to the splanchnic fibres showed (*a*) that the nerve-roots, the stimulation of which produce the splanchnic effects, are pre-eminently those between the eighth and thirteenth post-cervical nerves; (*b*) that the intra-venous injection of small doses of nicotine can abolish the excitatory effects evoked by stimulation of the nerve-roots, although effects may still be produced by excitation of the trunk of the splanchnic nerves; hence the nerve-cell station appears to be in the sympathetic ganglia.

Dr. Grünbaum followed with a communication on the effect of peritonitis on peristalsis. The peritonitis was produced by the injection of turpentine or other substances into the peritoneal cavity. The peristalsis was observed through the shaved abdominal wall, and in the opened cavity immersed in physiological salt solution at the body temperature. The peristalsis of both large and small intestine was increased for twenty-four hours after the injection. It then gradually diminished, and in four days resulted in complete paralysis, the large intestine being paralysed before the small intestine.

Nematode Embryos in the Skin of the Dog.—Dr. J. G. Schneider (*Centralbl. f. Bakteriol.*) has examined the causes of an affection of the dog which has been called

Dermatitis verminosa. This appears to be due to a new species of Nematode, belonging to the group which is ordinarily found living in decaying vegetable substances. They no doubt enter the skin by means of the hair-follicles. They are characterised by the eighteen regularly alternating pre-anal ventral papillæ, and by the constrictor muscle of the pharynx.—*Journ. Roy. Micros. Soc.*

Microbe of Distemper.—Dr. B. Galli-Valerio makes some further observations on the micro-organism of distemper (*Hundestaupe: cimurro*). This disease, says the author, is a malady like that of measles in children, and the name is often erroneously applied to various disorders. The microbe is an oval bacillus, 1·25 μ to 2·25 μ long by 0·31 μ broad. It is found in the lungs, brain, and spinal cord. Pure cultivations from these viscera are able to impart the disease to young dogs. Old dogs are always immune. Rabbits and guinea-pigs are refractory. Recently the author has found the oval bacillus in the purulent secretion from the frontal sinus and the conjunctiva. In gelatine the growth is white, with the production of gas and the formation of a funnel, but without liquefaction. The organism grows well on agar and potato, and in milk and serum. In old cultures the oval bacillus is mobile. In a few bacilli the poles are dilated, owing to the formation of spores. The organism stains well with aniline pigments.—*Ibid.*

Streptococcus peritonitidis-equi.—Herren H. J. Hamburger and J. A. Klauwers (loc. cit.) found in the exudation of a horse which died of peritonitis a streptococcus which retained its chain form in bouillon after repeated transferences. In fresh serum it not only did not develop, but degenerated in a short time; while in sterilised serum it retained its vitality for more than a month. In fresh lymph, ascitic fluid, and aqueous humour it developed well. On gelatine and agar the growth was white, and the gelatine was not liquefied. The optimum temperature was that of the body, though the coccus grew at room temperature. The microbe was stainable by all the usual methods and pigments. Subcutaneous injections of bouillon cultures caused only slight and transitory rise of temperature in rabbits and dogs, but a considerable swelling in horses. Intra-peritoneal injection (one horse) caused peritonitis, with rise of temperature to 40° C.—*Ibid.*

Identity of Clostridium fœtidum-lactis *and* Bacillus œdematis-maligni.—In the course of experiments relative

to cheese ripening Dr. E. von Freudenreich (loc. cit.) became assured that *Clostridium fœtidum-lactis* and the bacillus of malignant œdema were identical. The great dissemination of the latter, especially in the excrement of animals, would explain its presence in milk.—*Ibid.*

Monodactylism in Pigs.—According to M. Vasilescu, of Bucharest, there are monodactylous pigs now-a-days as in the time of Aristotle. They are to be found in some districts in his own country, and he has often seen them. The digit is built up as follows.

The third phalanx is single, and results from the fusion of two small bones. The second phalanges are completely united together by bony matter distally, but proximately the union is by dense fibro-cartilage only. The naviculars are united together and fused to the superior extremity of the combined second phalanges. The first phalanges are still separable and distinct. As to the muscles, the two divisions of the common extensor of the large digits are united below at the point of insertion into the fused third phalanges. The deep flexor tendons are similarly united at their common insertion. M. Vasilescu has obtained by the aid of a male of this peculiar type in ten successive generations fifty-four young specimens, thirty-nine of which are monodactyle and fifteen bidactyle. He concludes that monodactylism of the pig is a teratological phenomenon, and that it is hereditary: that it may be transmitted generation after generation, and reproduce itself indefinitely.—*Recueil de Méd. Vét.*

Caries of the Incisors of the Horse.—Cornevin and Lesbre record such a condition observed in an old horse. All the incisors and the canines were involved. The enamel of these teeth was raised up, split, and cracked, and revealed beneath black, long, and irregular erosions in the dentine. These erosions were especially extensive and well shown on the labial surface of the incisors; on the buccal surface the change was less marked, and limited to near the gum. The roots and alveoli were healthy, and the same applies to the internal dental cavity (*sic*). It is clear that the caries began at the neck of the tooth which had been exposed by the constant strokes of the teeth, the age also being taken into account. Caries of the incisors of the herbivora not having been seen by any observer up to the present time,—the authors have thought it worth their while to record the case. (Surely English veterinarians are not unacquainted with the condition.)—*Journ. de Méd. Vét. et Zootechnie.*

Rupture of the Rectum of a Horse cast for Operation.—Porcherel (*Journ. de Méd. Vét. de Zootech.*) had occasion to cast a horse to fire the hock. The patient struggled violently, and just as the operation was about to finish he everted the rectum. He was got up and rectum was replaced, but he continued to strain; the rectum again protruded ruptured, and some 75 centimetres of floating colon passed through the opening. Reduction was again attempted and maintained with the assistance of a bandage, but the patient was not long before he succumbed.—*Ibid.*

Compression and Atrophy of a Lobe of the Cerebrum by a Melanotic Tumour.—Blanc writes (loc. cit.) of an old horse, the subject of melanosis, killed for anatomical purposes, and found upon dissection to possess the following remarkable lesion:—A huge melanoma, situated at the base of the right ear, under the parotid gland, near to the petrous temporal bone and the basilar process of the occipital bone, involving the internal carotid artery and the nerves issuing from the foramen lacerum basis cranii, and at this point passing into the cranium. Here it formed an elongated tumour, having the shape and size of half a hen's egg cut along its great axis, extending from the tentorium cerebelli to the sella turcica of the sphenoid. At this point the brain, compressed by the neoplasm, had lost the sphenoidal lobe, or rather it was unrecognisable, it was so much pressed upon and atrophied. It is interesting to note that this exceedingly grave lesion had had no physiological consequence, and its presence was not even suspected.—*Ibid.*

On the Fertilisation of Cows and Mares.—It sometimes happens in practice that the practitioner is asked for his opinion upon the non-pregnant condition of a certain mare, despite the fact that she has been frequently served, and desired to either offer an explanation or to suggest possible means of attaining the desired end. It is well known that an acid medium is inimical if not fatal to the activity or life of the spermatozoa, and consequently if the fluids of the uterus are not alkaline, the sperms may perish before they are able to reach the ovum. Hence an injection that will neutralise any acidity may be expected to favour the chances of impregnation. M. Gast has experimented upon thirteen cows and eight mares with success, and this is what he does. He prepares a lukewarm solution of bicarbonate of soda in water (5 grammes = 77 grains in 1 litre = 35 fluid ounces), and injects it into the genital passages

an hour before coition. This injection neutralises the acid medium, and the spermatozoa are thus permitted access to the ovum. Our readers might report any case or cases where it has been tried, and give us the results.

How Long may the Stallion be profitably kept at the Stud? —M. GRABENSEE, taking as his basis the statistics furnished by the Prussian breeding establishments, has studied the question of fertility and age of the stallion. Many cases of long-continued fertility have been noticed. The most remarkable are recorded from the Hanoverian stud at Celle. Of 129 entire horses, 4 have been profitably used for twenty-six years, 6 for twenty-five, 4 for twenty-four, 16 for twenty-three, 21 for twenty-two, 33 for twenty-one years, and 45 during twenty years. As well-bred stallions usually begin their stud career at four years, it follows that the age of four of them is at least thirty years. One stallion, twenty-seven years old, has covered in a season sixty-seven mares successfully, and during his sojourn at the stud 1900 mares in all.—*L'Eleveur.*

The Use of Chloride of Barium.—M. ZSCHOKKE, of Zurich, has given chloride of barium to horses apparently healthy. He used a 10 per cent. watery solution, and into the jugular vein of three horses he injected 10 c.c., into two 7 c.c., 5 c.c. into one, and 15 c.c. into another. The seat of injection was disinfected, and the vein put up as in bleeding; the point of the needle was passed obliquely into the vein. In all the subjects, in times varying from three to thirty seconds, masticatory movements of the jaws were observed, and these last from fifteen to thirty minutes. In from one and a quarter to three and a half minutes there was expulsion of gas, followed by fæces. The subject that had received 1·5 grm. of the chloride groaned and strained violently; the others showed the same symptoms, but not so markedly. Some minutes afterwards all passed more fæces. None of them salivated, nor did they sweat. Zschokke injected doses of from 5 to 20 grammes of a 10 per cent. solution subcutaneously. The majority of the above results followed, but were slower in their onset and less marked; the abdominal symptoms seemed more severe, so Zschokke prefers the intra-venous injections, which he maintains are neither dangerous nor difficult. He recommends as a dose 5 c.c. of a 10 per cent. solution. It must ever be borne in mind by the practitioner that the intra-venous injections must be made with all due precautions for thorough asepticity.—*Schweizer-Archiv, Annales de Méd. Vét.*

A Peculiar Case of Actinomycosis.—M. Ehrhardt, of Zurich, records in the *Schweizer-Archiv* the following:—A two and a half year old heifer showed, among other symptoms, an abundant salivation, slight pain on mastication, and swelling in the parotidean region. Acidulated water was presented internally, and tincture of iodine to the parotid gland. A change for the better followed treatment, the patient put on flesh and brought forth normally at term. But two months later a mammitis involving one quarter appeared, and the general condition underwent an alarming change for the worse. The symptoms given above became aggravated, and the patient was slaughtered. On *post-mortem* examination a large number of actinomycotic foci were found in the parotid gland, as well as int he quarter of the udder observed to be affected during life.

Actinomycosis of the udder must be more common than many suppose. (We remember, four years ago, examining an udder for the late Professor Walley that exhibited the ray fungus in enormous quantities.) Ehrhardt ventures to predict that a course of iodide of potassium, as recommended by Thomasson, would have saved the patient. (This, of course, is problematical, but it would be an interesting and valuable inquiry if some of our readers would investigate suspicious inflammations of the udder, where the actinomyces may be the worker of mischief, and observe the effect of giving the products from the quarter or quarters to calves, and if iodide of potassium benefits the case.)—*Ibid.*

Reported Discovery of the Organism of Foot-and-Mouth Disease.—In the *Berliner Thierärztliche Wochenschrift* for October 22nd prominence is given to a note by J. St. Furtuna, Head of the Civil Veterinary Department in Roumania (the *Recueil de Médecine Vétérinaire* for 15th November, 1896, contains a similar note). It is to the effect that Veterinary Inspector Starcovici, after several years' work in the Bacteriological Institute of Bucharest, of which Professor Babes is the head, has succeeded, during February of the present year, in isolating the organism of foot-and-mouth disease. Further, he has succeeded in producing the disease by subcutaneous injection (? inoculation), the characteristic lesions of the alimentary tract being set up. Starcovici promises an early account of his researches and results.

Action of Poisons on Nerve-cells.—In a paper read recently before the annual meeting of German scientists,

Nissl described the changes in the nerve-cells of both spinal cord and brain of the rabbit which occur after the administration of certain poisons. Arsenic, alcohol, lead, morphia, phosphorus, and strychnine were amongst those investigated. The method of administration was to give daily the maximum dose not immediately fatal until death occurred. The method of staining was with Nissl's alcoholic methylene blue, which differentiates the cells into a staining and a non-staining portion. Nissl emphasises the following points:—(1) the possibility of thus analysing the changes; (2) the difference between the changes in the same cells with different poisons; (3) the different appearances in different cells with the same poison; and (4) the changes in the nucleus, consisting generally of a diminution in size, increased homogeneity, and more intense coloration. Arsenic causes a swelling and dissolution of both parts of the cells in the anterior cornua, whilst in the sympathetic system the changes consist of an alteration in the arrangement of the two substances, the details of the non-staining portion become indistinct, and the nuclei diminish in size. Alcohol does not affect all the spinal cells equally, and in the early stages the changes are rather indefinite, a greater sharpness of contour being the most obvious. In the cerebrum the cells appear as mere shadows, both substances disappearing, whilst the nuclei are also altered. Lead, too, does not affect all the spinal cells equally; in certain cells there are destruction and disappearance of the staining portion, with a degeneration of nuclei. In the brain the changes are similar to those produced by alcohol, but the non-staining portion takes more colour. Morphia causes a reversal of the colouring; the normally non-staining portion of the cell is coloured, the normally staining part is colourless. Strychnine produces a coarse, granular appearance, colouring of the non-staining portion, and more intense colouring in the staining part. Specimens from the human brain from cases of phosphorus poisoning and of enteric fever were also shown. The former caused in the early stages coloration of the non-staining portion, with fading in the other; finally neither portion stains. Enteric fever also causes a change whereby the non-staining part becomes coloured, but is streaky instead of being homogeneous; the other portion is degenerated. It remains to be seen whether the method will be applicable in cases of acute poisoning to detect which poison has been administered, and perhaps it may help to settle such questions as whether lead affects the

cells or nerves primarily, or whether the changes in tabes dorsalis and pernicious anæmia may not be—at any rate partially—attributable to mercury and arsenic respectively. —*Lancet.*

Reviews.

Physiologie des Menschen und der Säugethiere. (*Physiology of Man and Mammals.*) By Professor Dr. Munk. 4th edition, 633 pp., 120 woodcuts. Berlin, 1896. August Hirschwald, Unter den Linden 68.

It has been said, with a show of reason, that the life of a physiological "fact" is two years, but some physiological "facts" certainly do not deserve even so limited an existence. We are forcibly drawn to this conclusion by the explanations furnished in the work now before us of the mechanism of blood coagulation. The subject is of never-failing interest to the enthusiastic physiologist, and in nine cases out of ten constitutes the first to which he turns on receiving a new "physiology." We are sorry to find Professor Munk is unable to advance us any further on the road to a satisfactory solution than we were ten years ago. Starting with the question, "Why does not the blood coagulate in the vessels of living animals?" he calls attention to the work of Astley Cooper, but points out that it was Brücke who, in 1857, first demonstrated the "power possessed by the living vessel wall of preventing coagulation" (das gerinnungs-hemmende Vermögen der Gefässwand). Could any explanation be more lame or impotent? It would be just as logical to speak of the suicidal properties of fly-paper for the common house fly. How do we know that the vessel wall possesses, still less exerts, such a power? All we do know is that blood enclosed in an uninjured vessel remains fluid for a varying period, but whether that depends on the physiological or physical condition of the wall, or on that of the white or red blood-corpuscles, or even on the absence or presence of micro-organisms of some kind, is at present undetermined. That it is not due to some mysterious anti-coagulating property of the wall itself is shown by the fact that by tightly ligaturing the latter and so rupturing its inner coat coagulation still occurs readily. Nor is it due merely to the excessive smoothness of the lining, nor to the exclusion of air, for blood collected over mercury (than which nothing

could well present a smoother surface) and carefully excluded from contact with air, promptly coagulates. Nor does it appear to be a "vital" influence, because blood contained in oiled or vaseline-coated jars remains fluid just as in a ligatured vessel. Nor can we now imagine the presence of organisms essential to coagulation, as from experiments made many years ago we satisfied ourselves that coagulation was not impeded by storing the blood in carefully sterilised vessels. But the best explanation that Professor Munk can give is that "the living vessel wall exerts an influence which checks coagulation" (es geht also von der lebenden Gefässwand ein Einfluss aus, der die Gerinnung verhindert). Freund, whom he quotes, believes that the "adhesion between the blood (or its formed elements) and foreign bodies (dust, disease products on the inner surface of the vessel wall) gives the impulse necessary to coagulation, whilst the absence of such adhesion protects from coagulation; in consequence of adhesion certain changes appear to occur in the blood-corpuscles, and firstly in the colourless corpuscles, which lead to coagulation." We confess ourselves disappointed. The words only appear an acknowledgment of ignorance.

The section dealing with the blood is nevertheless most complete, and probably well represents the present position of physiological knowledge.

The chapters on digestion are also excellent. Munk finds a solution to the question, "Why does not the stomach digest itself?" in the constant circulation through the gastric walls of alkaline blood, which neutralises the effect of the acid secretions. The leg of a living frog or the ear of a rabbit introduced into a gastric fistula in the dog, nevertheless undergoes digestion. The gastric juices do not seem indispensable to digestion, for a dog whose stomach had been completely removed, and in which the œsophagus had been caused to directly communicate with the duodenum, nevertheless continued for five years in the best of condition.

As might be expected from his life-long researches on the functions of the brain and spinal cord, Munk devotes exceptional care to the sections dealing with sensation, secretion, and motion, and sets forth in a masterly style the most recent additions to our knowledge. Relative to the functions of the cerebellum he says, "When superficial portions of the cerebellum are removed or destroyed, voluntary movements become irregular and weaker than before. Injuries of one half determine disturbance on

both sides of the body. After complete removal of the cerebellum or only of its central portion, the animals stagger, and are unable to progress in an orderly fashion. For this reason Flourens ascribed to this portion of the brain the work of co-ordinating movement, and later experiments have not in any essential particular contradicted this."

The sense-organs are next passed in review, the methods of examining the eye, with and without the ophthalmoscope, being briefly but clearly explained. Great attention is paid to the problems of vision, but taste, smell, hearing, &c., are more shortly dealt with. The last chapters are devoted to the physiology of generation.

As a whole this last edition of Professor Munk's work impresses us as exceptionally thorough, clear, and up to date. Written for students and practitioners, it aims at stating great established facts rather than elaborating special points; and our only regret is that in the space at our disposal we have been unable to do it better justice.

Relazione e Schema di Regolamento sulla Polizia Sanitaria Veterinaria. Pp. 87. Rome. Tipografia Nationale di G. Berters.

This Government paper, issued by the Italian Department of Agriculture, deals with the measures to be adopted in preventing the spread of infectious disorders amongst animals. At a meeting of the Commission for the study of animal diseases in February last, the Director of the Department of Public Sanitation suggested the drawing up of such a scheme. The Commission consented, and appointed as a sub-committee Professors Perroncito, Oreste, and Lanzillotti-Buonsanti. The report first sets forth the reasons for regulating the traffic in animals, and the fundamental points on which legislation should be based; and then proceeds to consider the general measures to be applied against the spread of contagious diseases, the special precautions in the case of each disease, the restrictions to be imposed on the frontiers, and the penalties to be inflicted for non-compliance. In general, the lines followed are similar to those in force in this country, save that, as ours is a sea frontier, the English regulations are decidedly the simpler.

Allgemeine Chirurgie (*General Surgery*). By Professor Dr. Fröhner, Part II. (This is one of the volumes of the *Handbuch der Thierärztlichen Chirurgie und Geburtshilfe*.) 144 pp., price 4 marks. Vienna: Wilhelm Braumüller.

The present part concludes Professor Fröhner's contribution to this encyclopædic work. It deals with wounds, inflammations, ulceration, tumours, and herniæ; with diseases of bones, joints, tendons, muscles, vessels, and nerves, and with the surgical aspects of skin disorders. Although the author has used to the full his acquaintance with human surgery, the book is far from a mere compilation. As he very pertinently points out, veterinary surgery has in many directions, such as pathology, pharmacology, and therapeutics, struck out an independent course; while in certain departments the interests of the veterinary surgeon and of his medical *confrère* are entirely divergent. Tuberculosis of bones and joints, subjects of such importance in human surgery, offer no field for interference on our part, whilst actinomycosis and bothryomycosis (the latter unknown in man), though of vast interest to us, occupy an insignificant position in works on human surgery. In man osteomyelitis is the most important form of bone inflammation; in the horse, periostitis. Erysipelas, so common in man, is very rare in animals. Resection of joints and amputations are usually out of the question in our animals, while insuperable physical obstacles render the observation of strict antiseptic precautions, which have become of so great importance in man, to a large extent impossible. In many chapters, such as those on tumours and fractures, Professor Fröhner has depended almost solely on his own observation, and the work exhibits throughout a spirit of independent thought and disregard of received ideas, simply because they *are* received, which, while occasionally disturbing, seems invariably based on substantial foundations.

Lehrbuch der Arzneimittellehre (*Handbook of Veterinary Materia Medica*). By Professor Dr. Fröhner. Fourth (new) Edition. Pp. 608. Stuttgart, 1896, Ferdinand Enke.

During seven years Professor Fröhner's work has passed through four editions—a fairly convincing proof of its excellence. It aims at giving all the information which

may or should be demanded at the examination table; and for our own part we should be extremely sorry for the English student who was required to have all the contents of this volume at his fingers' ends. To enumerate the list of drugs considered would be an unending task, in addition to which a great many, like Diuretin, Salipyrin, Salophar, Phenocoll, Trional, Tetronal, Lysol, Solveol, Dermatol, Pyoktanin, Loretin, and Thioform, have either not yet found their way into English veterinary practice, or are known in name only.

We can therefore only say that the book is extremely thorough, and has been adopted as a standard by almost all the German veterinary schools. Professor Fröhner's works are always pleasant to read. He is invariably well informed, courageous in stating his views, simple in language, and forcible in style. This latest product of his pen will have a prominent place on our bookshelves, and is certain to be frequently referred to.

Atlas der Thierkrankheiten (*Atlas of Animal Diseases*). By Professor Th. Kitt. About 36 pp. and 16 full-size (9 by 6 inches) plates in natural colours. Stuttgart, 1896. Ferdinand Enke.

Recognising the shortcomings of museum preparations, and the difficulty of always supplying fresh specimens when lecturing on the more common disease conditions of domesticated animals, Professor Kitt has for many years past been collecting a number of oil and water-colour drawings with which to illustrate his teaching. Even where fresh tissues are at hand he has found these of great service in impressing pathological appearances on the minds of his students, and has now, by the enterprise of his publisher, Herr Ferdinand Enke, of Stuttgart, been able to give to his work a wider publicity through the medium of some beautifully prepared chromo-lithographic plates. The originals were painted in part by himself, in part by professional artists. The collection is intended as a supplement to his 'Pathological Anatomy,' and will be equally appreciated by English and German reading students.

Bacteriology and Infective Diseases. By Professor E. M. Crookshank, M.B. Fourth revised and greatly enlarged edition. 713 pp., 273 figs., and 23 coloured plates. Price 21*s.* net. London: H. K. Lewis, 136, Gower Street, W.C.

Those possessing the earlier editions of Professor Crookshank's fine volume will be surprised to note in how many directions it has been found possible to improve, and will peruse with equal interest and admiration this exceptionally thorough and attractive treatise.

After a short historical introduction and a chapter devoted to the morphology and physiology of bacteria, the

Tuberculosis of Pleura; "Grape-disease" (Ger. *Perlsucht*).

writer proceeds to consider the action of antiseptics and disinfectants. He says:

In spite of all that has been done there is room for many workers; a great deal of ground must be gone over again to rectify discrepancies, examine conflicting results, and thus determine what observations may be relied upon for practical application. . . . . Koch stated that for disinfecting a ship's bilge where a 5 per cent. solution of carbolic acid must be left forty-eight hours, a 1 in 1000 solution of chloride of mercury would only require a few minutes. But there was good reason for doubting the efficacy of very dilute solutions; for though, according to Koch's experi-

ments, anthrax spores subjected to a 1 in 20,000 solution of mercuric chloride for ten minutes, and *then washed in alcohol*, gave no growth in nutrient gelatine, silk threads exposed for ten minutes to a 1 in 20,000 or even 1 in 10,000 still proved fatal to mice.

He then goes on to show why this is. Mercuric chloride in albuminous solutions forms an insoluble albuminate of mercury, which acts as a protective layer and prevents the further penetration of the solution. It therefore only attains its fullest activity in albumen-free solutions. Further, absolute alcohol has been found to destroy pyogenic cocci in one minute, so that Koch was using not one but two antiseptics in the above experiment.

Furthermore, he tested the vitality of his spores by transplanting the silk threads used to the surface of nutrient gelatine, and noting whether growth occurred or not; but, as has been pointed out, he at the same time carried with them a large surplus of the antiseptic, and so, though the organisms might not have been dead, as Koch concluded, they were unable to multiply. Crookshank devised new methods, and his conclusions are summed up in the words that, as between mercuric chloride and carbolic acid, "*the results were entirely in favour of carbolic acid.*"

Koch's statements with reference to the germicidal power of corrosive sublimate in extremely weak solutions had led Lister to substitute it for carbolic acid as a detergent in surgery. The author's experiments, which were undertaken in 1892, encouraged Lister to revert to the use of carbolic acid, which, indeed, had always proved efficacious in surgical practice.

Koch and Wolfhügel's experiments on the relative efficacy of dry and moist heat showed that, at the temperature necessary for the destruction of spores, almost all fabrics are more or less injured by dry heat, whilst a few minutes' exposure to steam at atmospheric pressure is sufficient to kill the most resisting.

Chapter IV (Chemical Products of Bacteria) is deeply interesting, dealing, as it does, with ptomaines, toxins, and toxalbumins, which are intimately bound up with questions of acquired immunity. In 1889 Hankin, working under Koch, isolated an albumose from anthrax cultures, with which he succeeded in producing immunity in mice and rabbits. The history of tuberculin is shortly given, but that of mallein is dismissed in a few lines. We should gladly have seen more on this subject.

Writing on the subject of immunity, Professor Crookshank appears to support the views of Buchner. After

very shortly passing in review the various theories advanced to explain immunity, such as that of the formation in the blood by the bacillus of material inimical to its own

Ulceration of the Intestine in a typical case of Swine Fever.

existence, the "exhaustion" theory, the "vital resistance" theory, the theory of phagocytosis and chemiotaxis, he says :

Phagocytosis cannot explain the immunity which results from the injection of filtered cultures, or of antitoxins, but when blood-serum of immunised animals was shown to possess antitoxic properties a new explanation of immunity was at once forthcoming. In the light of these discoveries immunity, whether natural or acquired, was regarded as due to the accumulation in the blood and tissues of substances which have the property of counteracting partially or entirely the products by which pathogenic bacteria produce their poisonous effects. These antitoxins, or protecting proteids, can be obtained not only from the blood, but also from the spleen and the lymphatic and other glands. They result from the metabolism of the tissues of the body. Phagocytes in their conflict with bacteria may play a small part, but it is more than probable that immunity is altogether independent of phagocytosis.

Though we do not for a moment question the authority of Professor Crookshank, we venture to dissent from his conclusion. If immunity is "due to the accumulation in the blood and tissues of substances which have the property of counteracting . . . . the products by which pathogenic bacteria produce their poisonous effects;" if, in fact, it is a matter of the neutralisation of the bacterial poison by a soluble chemical substance, an action comparable to the neutralisation of an acid by an alkali, what becomes of the classic experiment in which a fowl resists inoculation with anthrax until such time as its normally high temperature is lowered by immersion in water? And furthermore, even though the effects are due to a soluble substance, whence comes that substance if not from the blood-cells and their prototypes in bone marrow, &c.? We cannot but think that the phagocytes and formed elements of the blood play a more important *rôle* in immunity than would appear from the above.

A short chapter on antitoxins and serum therapy leads to the consideration of "The Bacteriological Microscope." Then come chapters on the examination of bacteria, on nutrient media and methods of cultivation, and on the examination of air, soil, and water. In face of the recent conflicting reports *re* purity of London water it is satisfactory to learn that the actual number of bacteria in water is not of very great importance, while water containing less than 100 bacteria per cubic centimetre may be regarded as very pure.

The last chapter in this part is devoted to the photography of bacteria, and is of exceptional excellence.

Part II deals with the ætiology and prevention of infective diseases, and is so rich in valuable matter that it is difficult to determine what to quote and what to leave.

It seems to us that Professor Crookshank is scarcely fair to the veterinary profession in considering the question of

equine anthrax. He says, "Veterinary authorities have described 'Anthrax in the Horse,' but it remains to be seen whether there are not two or more affections included under this heading." He then goes on to quote some extremely antiquated views advanced by Mr. Fleming, who only claims to have seen two cases in England, and who from his description leaves it exceedingly doubtful whether these were anthrax at all. The descriptions of Williams are certainly not more satisfactory. Professor Crookshank states (but without giving dates or particulars, or indeed even a description of *post-mortem* appearances) that he "investigated the blood of a mare which was supposed to have died of anthrax, and on examining cover-glass preparations of the blood it was found to contain large numbers of bacilli, with the characteristic microscopical appearances of anthrax bacilli." Agar-agar cultivations gave characteristic growths, and double staining showed filaments and spores.

Veterinary surgeons have for years past recognised

From a photograph of a Norfolk steer. There is an actinomycotic growth about the size of an orange in front of the throat . . . This growth was associated with a large polypoid growth in the pharynx, which, by interference with deglutition, produced emaciation.

the disease, and though not always have yet in many instances confirmed their diagnosis by microscopical and bacteriological examination. *The Veterinarian* for 1895,

p. 38, and for 1896, pp. 24, 62, 118, 152, and 249, contain articles dealing with anthrax in horses, in some of which the present writer has endeavoured to correct certain views, still tenaciously held, as to the *post-mortem* appearances of this disease, such as the constancy of perilaryngeal swelling and enlargement of the spleen. In all the cases referred to diagnosis was confirmed both by microscopical examination and by cultivation on gelatine and agar-agar, whilst in not a few inoculation was also resorted to. We would respectfully commend to Professor Crookshank's notice the "Anthrax in Oats" case, both on account of its pathological interest and of its remarkable conclusion.

Interesting chapters on infectious pleuro-pneumonia, influenza, and Oriental plague follow. The ridiculous scare that resulted from the Hendon outbreak of "scarlet fever in the cow" (*sic*) is dealt with at considerable length. Smallpox, cattle plague, horse and cow-pox follow in order. Diphtheria and typhoid each receive a chapter. Swine fever is shortly but carefully dealt with, and the value of the letterpress is greatly augmented by some very beautiful illustrations, one of which, thanks to the publisher, Mr. Lewis, we are able to reproduce.

Passing over a chapter on cholera, we arrive at the subject of tuberculosis. Several fine plates illustrate the different forms which the bacillus assumes in various animals. The author is of opinion that "the channels of infection in man are also most probably the pulmonary and intestinal mucous membranes," and that the "possibility of inoculation of skin wounds is open to doubt." There may, however, be exceptions to this rule, and a late eminent member of the veterinary profession, whose untimely decease was due to tuberculosis, assured the present writer that he considered infection had occurred in his own case through the medium of a small wound in the hand. A very good illustration is furnished of "perlsucht" disease of the pleura, the growths of which are commonly known in this country as "grapes" (see p. 925). We much fear that the veterinary profession, who are entitled to speak on the subject of tuberculosis with some authority, will hardly accept, save in its most limited sense, the statement that "calves may also suffer from congenital tuberculosis, the bacilli having been transmitted from the mother *during gestation*." We had thought that Bang's experiments, now almost classic, had effectually proved the extreme rarity of such an occurrence. Regarding tuberculosis in dogs, Peters is referred to as having described

one case, but that the disease is by no means uncommon is shown by the monograph published some year or two ago by Professor Cadiot, of Alfort, who has collected particulars of a very large number.

A short description of leprosy, rhino-scleroma, and trachoma is succeeded by nearly forty pages on actinomycosis, a subject of special importance to veterinary surgeons, and one which members of our profession have done much to elucidate. In 1887 Professor Crookshank began the investigation of this disease, then very prevalent in Norfolk, and some excellent pictures of actinomycotic tumours in various parts of the body, illustrating this section (one of which we are permitted to reproduce), were prepared, we believe, about that time. Tetanus, rabies, and louping-ill are noticed, though no specially novel views are advanced. Foot-rot and bee diseases conclude Part II. The rest of the book deals with the classification and description of micro-organisms, and contains a very full appendix on apparatus and materials.

Considering the enormous area traversed, the volume is exceptionally complete. On every subject the author has striven to provide the latest and best information; and if in a few instances we might have looked for more ample treatment, it must always be borne in mind that great additions have already been made, and that considerations of space weigh with an author no less than with an editor. The printing and general get-up of the book are beyond reproach, and reflect on its publisher, Mr. Lewis, the very greatest credit. JNO. A. W. D.

Current Topics.

THE MOTOR CAR.

By JNO. A. W. DOLLAR.

THE removal of restrictions on the employment of mechanically propelled road vehicles in and about London was signalised on the 14th November by a great meeting, and by the starting of some forty or fifty motor cars on a trial trip to Brighton. The weather proved execrable, the roads exceedingly heavy and treacherous, and it was confidently predicted by many that the trial would be a failure. An immense crowd collected outside the Hôtel Métropole, Northumberland Avenue, from which point the start was to

be made, and all the surrounding buildings and points of vantage were covered with people who waited with a vast amount of patience (considering the condition of the weather) for the procession. Punctually at 10.30 a.m., the advertised time for departure, a narrow lane was cleared for the vehicles, and the first ten got under way. The remainder followed at intervals. By the time Reigate was attained the attendance showed a serious falling off, and the cars that finally reached Brighton numbered less than a score. So far as I am aware none returned to London before the succeeding Monday. Considering the weather, state of the roads, and the untried nature of the new vehicles, the trial must, however, be viewed as fairly successful.

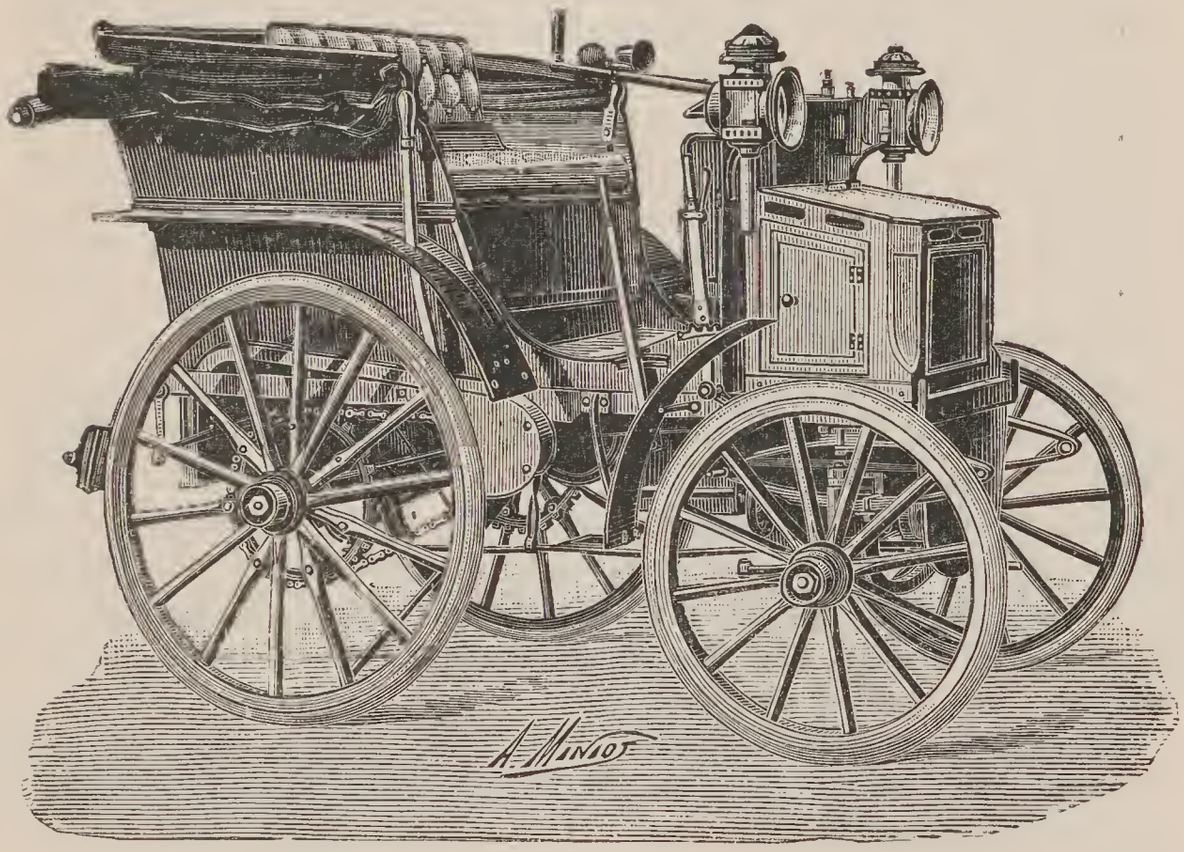
The veterinary profession is perhaps as much interested in the future of motor cars as any section of the public, and it may be of interest to shortly discuss the peculiarities of the different styles of motor, and to seek in the trial just over some indication of the future of this means of locomotion.

Firstly, then, there are at present three great groups of motors, actuated respectively by steam, oil or gas, and electricity.

Steam engines have the advantages of working steadily, of exerting great power, of starting and stopping readily, of driving at very varying speeds, and of being little liable to disarrangement. Their chief disadvantages are their weight, consequent on the necessity for having a boiler and for carrying fuel and water, the fact of their emitting smoke—which, however, is obviated by using oil or coke as fuel,—and the difficulty in condensing the steam used ; whilst even the best steam engine converts into useful energy something less than 10 per cent. of the theoretical energy produced by burning a given weight of coal.

Oil or gas engines are driven by the explosion of a mixture of some hydrocarbon vapour (or gas) and air contained in a cylinder very similar to that of a steam engine. Every one knows that when ordinary coal gas and air are mixed in certain proportions, and a light applied, a flash occurs accompanied by a loud report, and that if this happens on a large scale—as, for instance, when gas has been escaping into a room—the power produced may be sufficient to blow out the windows and bring down the ceiling, or even the house itself. A gas motor is arranged so that the force of the explosion which takes place in the cylinder drives forward the piston, and so turns the crank which imparts motion to the rest of the machinery. It will

easily be understood that as the source of power is an explosion, and not a gradual expansion of vapour such as occurs in the cylinder of a steam engine, the resulting motion is very apt to be jerky; and it is for this reason, and to render the running more regular, that gas engines are supplied with such heavy fly-wheels. It was the tendency to jerk, in fact, which for a long time interfered with the introduction of gas engines for other purposes, and which even now prevents their being largely employed where a very regular turning movement is necessary, as for electric lighting. A further reason for this jerkiness consists in the fact that the speed of almost all gas engines is controlled by the number of explosions that take place per minute, and that very few are arranged to give an explosion



Car for two persons with Daimler motor.

at every revolution. The engine, therefore, is always running either above or below its proper speed; when the explosion occurs at every revolution or every second revolution (as in all "Otto" engines) the engine races away too fast, the governor comes into action, and gas is shut off, and then for perhaps three or four revolutions there is no explosion at all.

As in motor cars the weight must be kept down as low as possible, this tendency to jerk cannot be overcome by adding a heavy fly-wheel.

Then, again, there is always some difficulty in starting a gas engine; it is not a mere question of turning a handle and allowing steam to enter the cylinder, because the piston must first draw in its charge of gas before the latter can be exploded, and that means the fly-wheel must be rotated by hand. Consequently, in practice, the motor has to be kept constantly running both when the car is in motion and at rest, and vibration is constant, and even more pronounced when the car is standing still than when it is running at nine or ten miles an hour.

A further disadvantage of the gas motor is that it discharges vapours that cannot be condensed, and that are at high pressure; and so, though the sound may be muffled, there is always a certain rapid panting or puffing.

These are *all* serious disadvantages, and we may be sure that were they not counterbalanced by some great merits we should not have heard so much of the gas or oil motor for driving cars. One of the merits of the gas motor is the power it is able to exert in proportion to its bulk and weight. As the fuel is burned directly within the cylinder there is no need for a boiler or furnace, and the return of energy per unit of fuel is very much higher than in the best steam engine. Then, again, the fuel—oil—is extremely efficient, weight for weight, as compared with coal, and takes up very little space, while it is easily obtained all over the country.

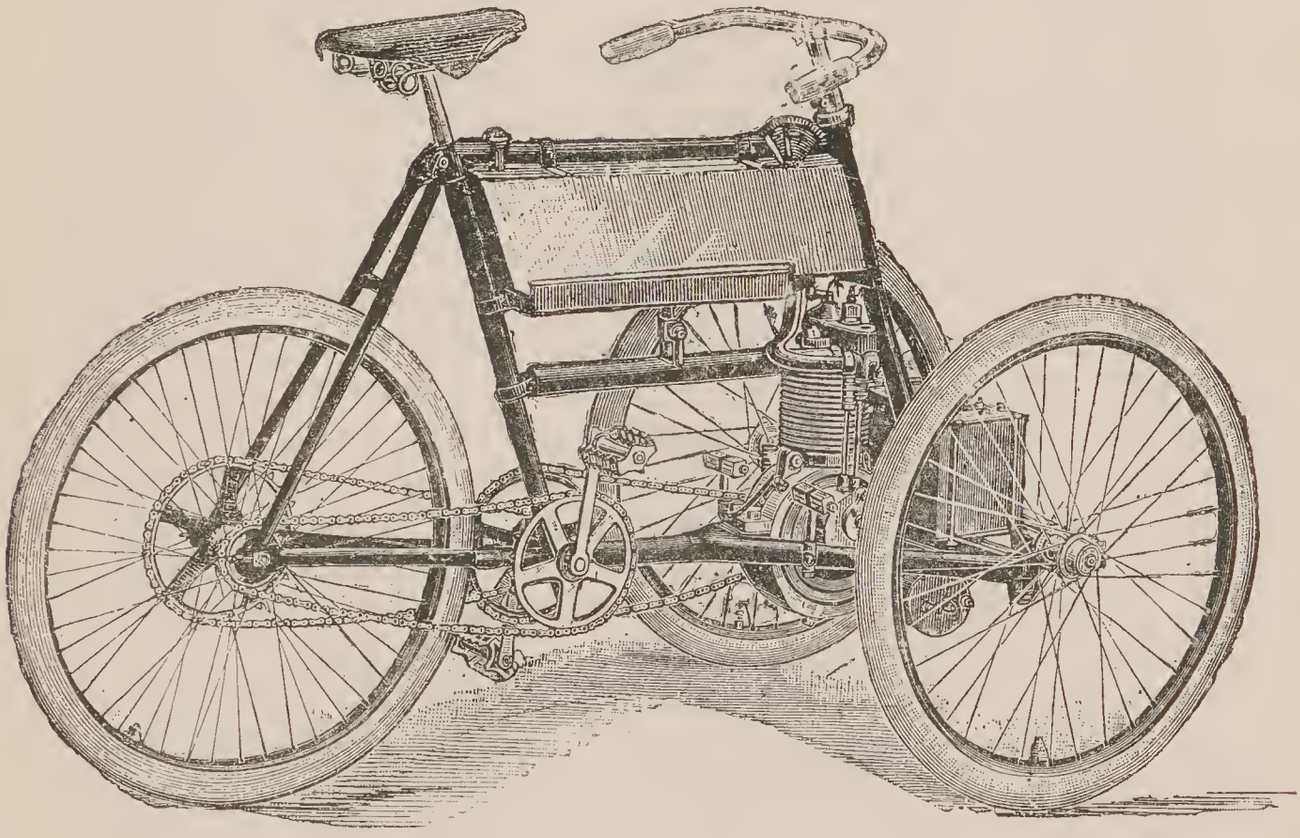
The machinery of the oil or gas engine is simple, and free of many of the complications necessary to steam engines, though this is more than set off by the fickleness of the gas motor, and its occasional refusal to work for no clearly assignable reason.

The jerkiness and sound produced by gas motors are undoubtedly their greatest objections, and will for a considerable time seriously limit their application, while in a great number of instances the evil smell of petroleum which most leave behind them, though little noticed by the occupants of a car in motion, are very perceptible to bystanders, and, when the motion is arrested, to passengers also.

The last source of energy—electricity—is as yet little employed. Electric motors are extremely steady and efficient, and turn into useful work fully 90 per cent. of the theoretical energy supplied to them, as opposed to, say, 10 per cent. in the steam engine; but as the only practical means of carrying that energy is in the form of storage batteries, the plates of which are made of lead, and hence

are very heavy, it is soon found that the electric carriage when on runs of thirty to forty miles has to carry far more weight in the shape of batteries than the total weight of its passengers and luggage. This is a very serious, nay, a fatal objection. For short runs in cities electric carriages are almost perfect. They are very steady, can go fast or slow as required, the motor only runs when the carriage is in motion, and there is no noise, smoke, or smell. But for light carriages new (charged) batteries must be supplied after every twenty or twenty-five miles have been run, failing which the whole machine comes to a standstill, and has to be ignominiously dragged home by a horse.

A further objection is that secondary batteries are very fragile affairs, and liable to derangement by the incessant vibration of a carriage, while they seldom give out any-



The Gladiator motor tricycle.

thing like the amount of energy expended in charging them, especially if they have been left standing for several days.

Summing up the position, it is probable that in the future light carriages in towns will be driven either by steam or electricity, and that oil engines will find wider application in the country, where their vibration, &c., will be less objectionable, and the absence of charging stations would put electric carriages out of the question. As showing that steam traction in towns is perfectly practicable, I may

refer to the steam tramway system at work in Paris on the Gennevilliers-Madeleine line, by which I have often travelled, and which leaves little to be desired, either as regards efficiency, speed, or absence of smoke and sound.

The motor of which, perhaps, most has been heard in this country is the invention of Herr Daimler. The patent rights have been acquired by an English Company, who were largely represented at the meeting of November 14th. This motor is driven by petroleum, and although still far from perfect will probably be so improved as to hold the market for some years to come. The illustrations given show a road carriage fitted with the Daimler, and a tricycle fitted with the "Gladiator" motor. To those of my readers who are possessed of some mechanical knowledge, and who wish to thoroughly master the details of this and of most of the other motors now in the market, I cannot do better than recommend a perusal of Mr. Farman's new book on Auto-cars, published by Messrs. Whittaker, to whom I wish to express my indebtedness for their courtesy in supplying the two plates herewith.

The importance of this latest departure in horseless locomotion is so great, and has given rise to so much speculation, that it is well worth the while of veterinary surgeons, who, more than most people, are expected to possess encyclopædic knowledge, to make themselves at least passingly acquainted with its present position. The motor car has come to stay. It will not displace the horse, but it will still further narrow his sphere of usefulness. A practical road carriage, which will be largely adopted, has yet to be produced; but there is no reasonable doubt that it will be demanded and manufactured. Light parcel vans will probably be first patronised, and the motor will gradually extend its sway both to heavier and lighter vehicles. Should it be deemed necessary, I may at some future time give more precise details of the various cars now being introduced.

A VETERINARY MAGISTRATE.

Our readers will be pleased to learn that Mr. Alexander Inglis M'Callum, veterinary surgeon, of the Grassmarket, Edinburgh, has been placed upon the Commission of Peace for the City of Edinburgh. We believe that Mr. M'Callum is the only veterinary surgeon in Scotland who is a Justice of the Peace, and we take this the earliest opportunity of

congratulating him on his newly acquired honour. We feel sure the profession generally will be proud that one of its members has been recognised in so signal a manner, and we all wish Mr. M'Callum good health and long life to enjoy the dignity of the position to which he has been called.

RINDERPEST.

The following note on Rinderpest has just been issued by the Under Secretary for Agriculture, Cape Town.

SYMPTOMS OF RINDERPEST.

The early symptoms of Rinderpest are a rise of internal temperature to 106° or 107° Fahr.; the animal stands with its head hanging down, ears drawn back, and coat staring; it refuses all food and occasionally shivers. A mucous discharge flows from the eyes and nostrils; the extremities are cold, the breathing is laboured and frequently accompanied with moaning. The inner part of the upper lip and roof of the mouth and all visible mucous membranes are reddened, and often covered with an eruption of minute pimples, and later with a bran-like exudation. The bowels are occasionally constipated, but in most cases diarrhœa sets in, the evacuations being slimy and very frequently of a dirty yellow colour. The prostration of strength is great, the animal staggering when made to move. In milch cows the secretion of milk is rapidly diminished, and soon ceases altogether. The disease usually ends fatally in from six to ten days.

It is generally believed that the infection is produced through the respiratory organs; from there the contagion becomes generalised. The contagion exists in the secretions and excretions, urine, saliva, mucous secretions of the nose, mouth, and eyes, in the sweat, expired air, blood, and in all the tissues. It may be conveyed directly by the diseased animals, or indirectly by the dung, the bedding, the earth, hides, wool, meat, clothing, wagons or vessels, by people, dogs, sheep and chickens, &c. Contagion takes place only through short distances. When the weather is dry this is reduced to its minimum (abont twenty-seven yards), and the progress of the disease may be stopped by a ditch separating the diseased from the healthy animals.

Army Veterinary Department.

Extract from 'London Gazette' of 17th November, 1896.

"The Queen has been graciously pleased to give orders for the following appointments to the Distinguished Service Order, and promotions in the Army in recognition of the services of the undermentioned officers during the recent operations in the Soudan:

"To be Companion of the Distinguished Service Order, viz.:— . . . . Veterinary Captain G. R. Griffith, A.V.D (employed with Egyptian army)."

Arrivals and Departures.—The undermentioned veterinary officers arrived from India per steamship "Victoria" on 14th inst., having completed a tour of service in that country:

Veterinary Captain J. A. Nunn, C.I.E., D.S.O., Veterinary Captain R. W. Burke, and Veterinary Lieutenant E. W. Larnder.

Veterinary Captain L. J. Blenkinsop embarked 20th inst. for Egypt, to take up the duties of senior veterinary officer in that country to relieve Veterinary Major J. Hammond, who returns home on retirement.

Veterinary Lieutenant T. E. W. Lewis proceeded to Woolwich with the 3rd Dragoon Guards from Shorncliffe on 29th ult.

Veterinary Captain D. C. Pallin proceeded to Canterbury from Shorncliffe on 1st Nov., and has taken over veterinary charge of the cavalry depôt.

Veterinary Captain J. B. Savage left Canterbury on 1st Nov., and took over veterinary charge of the cavalry depôt at Shorncliffe from Veterinary Major J. Burton, who has proceeded to Dublin for duty.

Veterinary Lieutenant R. H. Holmes joined at Athlone from Dublin for duty with Royal Artillery.

Veterinary Lieutenant F. Eassie arrived from India on 3rd inst. on completion of foreign tour.

Veterinary Lieutenant W. S. Anthony joined at Aldershot for duty on 2nd Nov. on appointment.

Veterinary Major S. Duff-Gillespie, on leave from India, was brought on the Home Establishment 10th inst., and ordered to join for duty at Woolwich on 14th inst.

Veterinary Captain A. J. Haslam arrived at Woolwich from Dublin for duty 5th Nov.

THE AJAX
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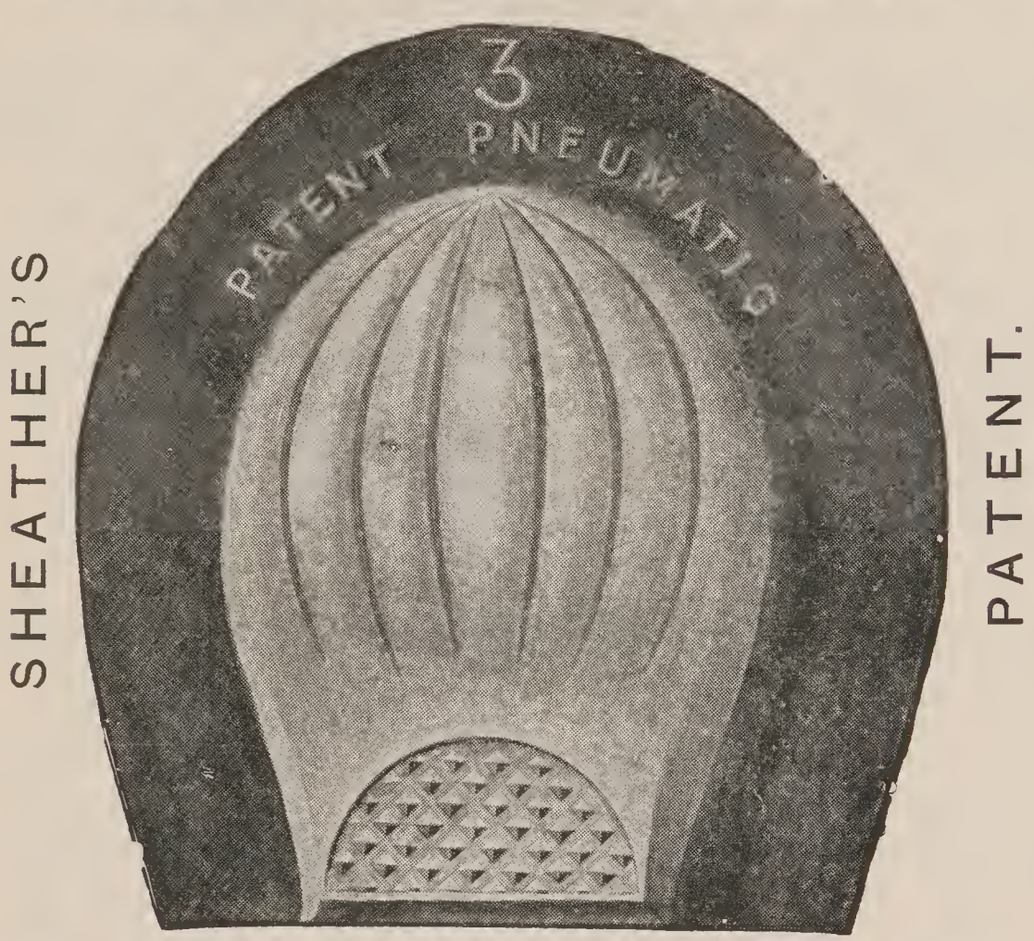

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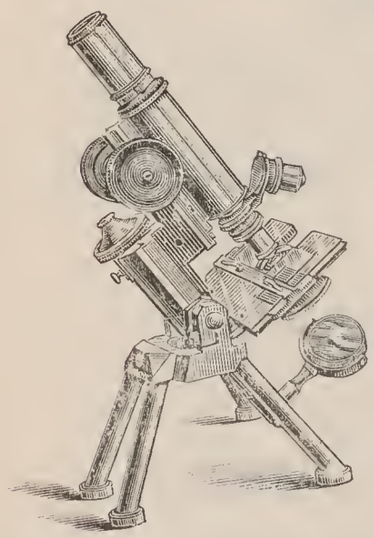

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Veterinary Lieutenant F. Eassie joined for duty at Aldershot on 10th Nov.

The undermentioned veterinary officers embarked for a tour of service in India on the 10th Nov. :

Veterinary Major B. A. W. Powell; Veterinary Lieutenants T. W. Rudd and W. O. C. Dawson.

Veterinary Lieutenant W. N. Wright also embarked on same date, on return from sick leave of absence.

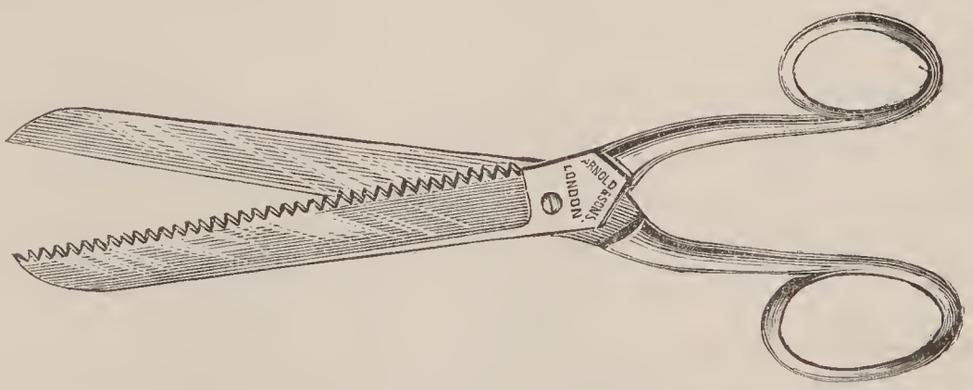
Veterinary Captain R. Moore arrived from South Africa 20th ult., and is posted to Aldershot for duty with the Royal Engineers.

Veterinary Lieutenant W. D. Smith arrived from Egypt 23rd ult. on three months' leave of absence.

New Apparatus, &c.

RELIANCE TAIL SCISSORS. (PATENTED.)

The woodcut represents a new form of scissors for cutting or trimming horses' tails. One blade consists



entirely of teeth, which prevent the hair slipping when once caught, whilst the construction is such that these scissors do not become blunt, like the ordinary kind. The patentees and manufacturers are Messrs. Arnold and Sons.

Obituary.

Delany, Felix, Pembroke Square. Diploma dated May, 1841.

Prescott, Anthony, Manchester. Diploma dated April, 1871.

Notices to Correspondents.

To ensure the publication of communications in the coming number they should arrive by the 15th of the month.

Will Contributors kindly note that, for illustrative purposes, the following are the best processes in order of merit?—Good Indian ink line-drawings, on stout white paper or cardboard, crayon drawings, photographs with good contrasts of light and shade, bold sketches in sepia. Sketches in lead pencil are very difficult to reproduce, and are not satisfactory.

The drawing should be considerably larger than the subsequent illustration is to appear; the reduction fines the lines and greatly improves the appearance.

Letters, Articles, Reports of Cases and of Veterinary Meetings, should be addressed to The Editor, 'Veterinarian,' Royal (Dick) Veterinary College, Clyde Street, Edinburgh.

The Editor does not hold himself responsible for the sentiments expressed by contributors, nor can he undertake to return rejected papers. He will be happy to advise and assist as far as possible, by letter, correspondents who may desire information regarding cases, instruments, or books.

The Editor and Professor Ewart desire to thank Mr. Bovett, M.R.C.V.S., Bridgwater, for the specimens forwarded, and to say how extremely valuable they are for the purposes of the several investigations now in hand and to be instituted.

Practitioners who are able to obtain specimens of horse embryos are reminded that they will be very acceptable, and the more so the smaller and younger they are. The exact age should be ascertained if possible; and to prevent *post-mortem* changes the specimens should be placed in a mixture of two thirds methylated spirit and one third water in a bottle, or if large, wrapped round with tow or cotton wool saturated with methylated spirit, packed and sent, carriage unpaid, to Professor Ewart, University Old Buildings, Edinburgh.

Important.—The proprietors of the *Veterinarian* invite suggestions and criticisms from their readers tending to improve the Journal. Please address all letters to the Proprietors, care of Messrs. Adlard and Son, 22½, Bartholomew Close, E.C.

TO CONTRIBUTORS.—Will Contributors of clinical Articles kindly notify on their MS. whether they desire reprints, as unless this be done type will be broken up, and reprints cannot afterwards be furnished.

JOURNALS, MAGAZINES, NEWSPAPERS, ETC., RECEIVED.

La Clinica Veterinaria. Revista de Medicina Veterinara (Bucharest). *Recueil de Médecine Vétérinaire. Annales de Médecine Vétérinaire. Revue Vétérinaire. Œsterreiche Monatsschrift fur Thierheilkunde. Berliner Thierärztliche Wochenschrift. The Veterinary Record. The Lancet. The British Medical Journal. The Field. The Live Stock Journal. Annual Reports of Proceedings uuder the Diseases of Animals Act*, 1894, *&c. Tuberculosis Investigations, Washington.*

Letters and communications have been received from Messrs. Hugh Begg, J. McDonald, Wm. M. Scott, E. W. Bovett, M.R.C.V.S., Wallis Hoare, E. C. Winter, F. G. Ashley, F.R.C.V.S., P. M. Oldroyd, A. C. Hodgkins, J. E. Young, M.R.C.V.S., Alfred Marston, M.R.C.V.S., Vet. Lieut. A. Logan Harris, A.V.D., &c.

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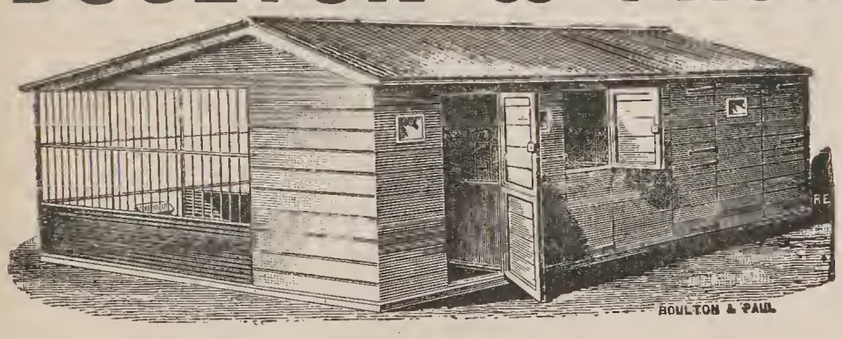

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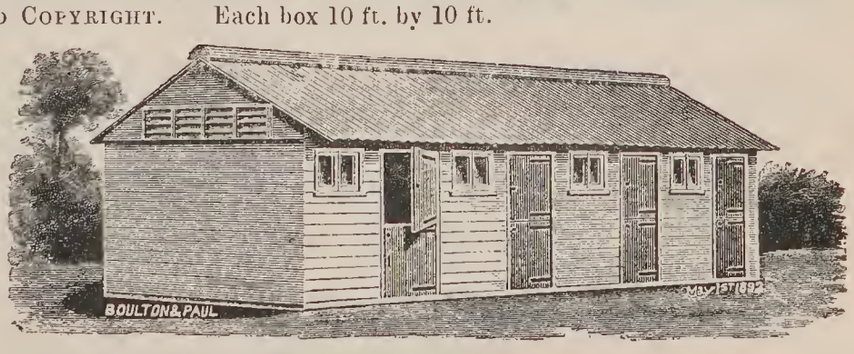

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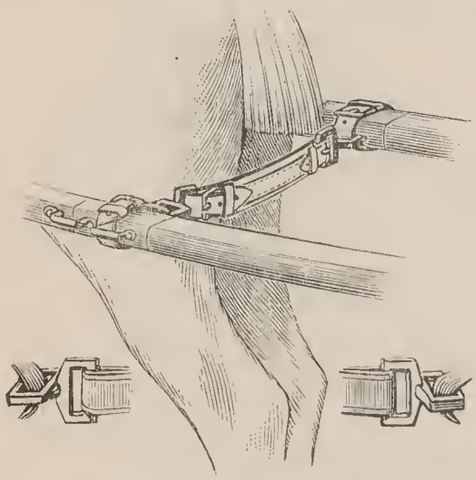

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THE VETERINARIAN

REPORTS OF SOCIETIES.

NOVEMBER, 1896.

Royal College of Veterinary Surgeons.

A quarterly meeting of Council was held at the College on Thursday, 22nd instant, the President (Mr. R. Trigger) in the chair. The following members of Council were present: General Sir Frederick FitzWygram, Messrs. Lambert, Butler, Lawson, Peele, Edgar, Wartnaby, Villar, Kidd, Dollar, McFadyean, Fraser, J. F. Simpson, Mulvey, Dewar, Locke, Penberthy, Bower, Elphick, Beddard, W. O. Williams, Barrett, Pritchard, Wragg, Mason, Hartley, Shave, Abson; Mr. Geo. Thatcher (solicitor), and Mr. A. W. Hill (Secretary).

The SECRETARY read the notice convening the meeting, and also read the minutes of the last meeting, which were confirmed.

CORRESPONDENCE.

The SECRETARY read a letter from the family of the late Mr. Lowe, one of the trustees, thanking the Council for the vote of condolence passed by them. He stated that he had received letters from three veterinary medical societies—the Royal Counties, the Lancashire, and the Hampshire and Southern Counties—petitioning the College to take steps to obtain an Act of Parliament for the exemption of veterinary surgeons from acting on juries.

Mr. MULVEY asked whether the Council had any power to act without obtaining an Act of Parliament.

The PRESIDENT said nothing but an Act of Parliament would be of any use.

Mr. SIMPSON proposed that the solicitor should be asked to report at the next Council meeting the steps which should be taken for, and the probable cost of obtaining an Act of Parliament to exempt veterinary surgeons from acting on juries.

Mr. LAWSON seconded the proposition, which was agreed to.

The SECRETARY also read a communication from Mr. J. G. J. Black in which he stated that he had joined the Ontario Veterinary College, passed the two years course and obtained his degree in March, 1896, on the understanding, according to the existing regulations, that he would be eligible for the Army on subsequently attending for two years at a veterinary College in Scotland or London with satisfactory passing of examinations. According to the altered regulations that degree was not now taken into consideration, as it was when he started on his course, and he therefore submitted to the Council that the Council should recognise his Canadian degree and allow him to finish up his course in London or Scotland with a two years' C. and D. He would then be 25 years of age, which would leave only twelve months time for any vacancy that might occur in the A.V.D. before reaching the age limit.

The PRESIDENT said the solicitor's opinion was that the Council had no power to alter their rules in favour of Mr. Black, and the solicitor would write to him to that effect.

Professor DEWAR asked if it was the case that the College had no right to allow one year of the curriculum to be departed from in the case of the American Colleges, the same as was allowed in the case of medical men. He had had American veterinary surgeons calling upon him during the summer asking him the question.

Prof. W. O. Williams said the Council had no power to do it. The Council could take the power.

The PRESIDENT said there was a letter following very much upon the question which had been received. It was an application from the Melbourne College.

The SECRETARY then read a communication from the Melbourne Veterinary College which stated that the committee appointed by the Veterinary Surgeons' Society of Victoria to consider the application for recognition by the Royal College of Veterinary Surgeons of Great Britain, suggested—that when equality of teaching and examination etc. had been established, and the English Act adopted in Victoria, the Council of the R.C.V.S. should be respectfully requested to grant their diploma to the graduates of the Melbourne Veterinary College in order that they might be entitled to practise in any part of the British Empire the same as any other members of the Royal College of Veterinary Surgeons.

The SECRETARY also read the solicitor's opinion which suggested that the application should be referred to a committee to consider and report.

Mr. MULVEY said there was no doubt that the time would shortly arrive when the College would have, according to their Act of Parliament, to recognise some of the Colonial Schools, and he would therefore move "That the letters be referred to a small committee consisting of the Principal of the London School, the Principal of one of the Scotch Schools, Vet.-Capt. Butler

Mr. Simpson, Mr. Dollar, the President, and himself as proposer."

Mr. Dollar seconded the motion.

The President thought it was rather indefinite to say "One of the Scotch Schools." He thought it should be more definite.

Mr. Mulvey said that as Prof. Williams was the senior he would propose his name.

Prof. W. O. Williams suggested that the committee ought to have a definite name, because in all probability it would be required year after year. It was the first time applications had been made, but the probability was it would have other applications from the American and Canadian schools.

Vet.-Capt. Butler proposed that Prof. Edgar's name should be added to the committee.

The President said that he himself would be an *ex officio* member of the committee, and therefore thought as the committee was only to consist of seven members, Prof. Edgar's name could be added.

The resolution of Mr. Mulvey with the addition of Prof. Edgar's name was then put and agreed to.

Mr. Mulvey suggested that the committee should be called "Committee *re* Colonial Schools."

Prof. McFadyean submitted that the question could not be considered in a general way, but that every particular application would have to be considered on its own merits, and that the committee was appointed to consider this particular application, and any decision arrived at would be no rule for any other case.

Prof. Penberthy said that Mr. Mulvey distinctly said the whole question was to be considered.

Mr. Mulvey : Certainly.

Vet.-Col. Lambert could not see that the committee could be confined altogether to the present application because whatever was said about the application would form a precedent which he hoped would govern any subsequent applications. Therefore whatever it might be called it would have a far more reaching effect than the school that now applied for it.

Mr. Simpson thought the committee would not work less arduously because they had not a name.

Prof. Penberthy asked whether the Council were voting for a Committee to recommend general propositions or to deal only with the individual case that had been mentioned.

The President said the Committee had no power except to deal with the particular case and report to the Council.

Prof. Pritchard thought there was one thing in connection with the matter which should occupy the attention of the Council for a second or two. There was a request made that a colonial man should pass an examination in a colony and should be under the same banner as the man who went through an education in

this country and should be possessed of the same diploma. He thought that was rather a serious matter, and it was the serious part of the application in his opinion. If the Colonial School was an easy one to get through he thought there were plenty of men who would not hesitate to go over to the colonies and obtain what the men here had to work pretty hard for. If the Committee was not going to deal with the whole matter he should object to the Committee altogether.

The PRESIDENT said it was a committee to consider and report only upon the communication received. The Council could not appoint a Standing Committee without notice.

Prof. PRITCHARD said Mr. Mulvey most distinctly said that the whole matter sooner or later would have to be opened up, and with that preface to his speech he proposed the Committee.

Mr. MULVEY said that was his intention. There was no doubt that the Council would be bound to recognise some of those schools if they conformed to the regulations of the College. Their act was very plain in the matter, and unless they recognised them these schools had the right to appeal to the Privy Council, and if they could prove to the satisfaction of the Privy Council that the education they gave was equal to that of the College they could force the Council to recognise them.

Prof. M'FADYEAN dissented. He said it was very likely the case that they might be compelled in reason to affiliate a veterinary college, but that was quite a different thing from allowing them to have an examination out there and compelling the Council to send their diploma out there.

Mr. MULVEY said the Committee was to report on the whole question.

Mr. HARTLEY thought that was the feeling of a section of the meeting.

The PRESIDENT said there would be a report and if the Council liked to make that report govern future cases they could do so.

PRESENTATIONS TO THE LIBRARY.

The SECRETARY announced the following presentations as having been made to the Library :—*Veterinary Journal* (three months), by the Editor; *Veterinarian* (three months), by the Editor; *Veterinary Record*, bound volume for the year, by the Editor; Proceedings of the National Veterinary Association, 1896; *Journal of Comparative Pathology & Therapeutics;* by Prof. M'Fadyean; Calendar of the Royal College of Surgeons, England, 1896; Annual Statistics and General Report of the Army Veterinary Department, by the Director-General.

On the motion of Professor Penberthy, seconded by Mr. Mulvey, a vote of thanks was accorded to the donors.

FINANCE COMMITTEE.

The SECRETARY read the report of the Finance Committee which stated that the vouchers and receipts for payment during the preceding quarter had been examined and passed, and that the present liabilities amounted to £259 9 6, which the Committee recommended to be paid. The Committee also stated that after investigating the accounts they found that the College had incurred a loss of £323 on the last three examinations, and they therefore recommend the Council to hold only two examinations in England and Scotland each year.

Prof. M'FADYEAN said he understood that the report recommended that the March examination should be discontinued on the ground that it had very materially added to the expense.

The PRESIDENT said it did not recommend that any special examination should be discontinued, but that two should be held in the year in London and two in Scotland.

Prof. M'FADYEAN said it recommended that the third examination should be discontinued.

The PRESIDENT said that was so.

Prof. MCFADYEAN said it recommended that on the ground that the third examination had embarassed the finances of the College during the past year by greatly adding to the expenditure and not materially adding to the income. It seemed to him that the members of the Finance Committee had fallen into rather a large blunder on that point. No doubt the Finance Committee had gone very carefully into the matter, and would be able to tell the Council how much better their finances would be to-day if last year they had only had two examinations and had had the same number of students presenting themselves. He wished to know how strong was the reason for abandoning the third examination.

The PRESIDENT said the College would have made a loss of about £100 instead of £300.

Mr. BARRETT said there would have been a loss of £300 roughly.

Prof. MCFADYEAN said the Committee had fallen into a huge blunder by omitting to observe that they examined 70 more students under the three examinations system than they would have examined under the two examinations system. The Committee had omitted to take into notice that in the March examination there were 67 students rejected, and they got for the re-examination of those students a sum of £211. The income for the past year would really have been £211 less than it actually was. Everybody could see that it would have been of advantage to the College to have had the examination of those students postponed until July, because the College would have saved the travelling expenses of the examiners if nothing else. He admitted it was quite

obvious that there would have been a saving to the College by carrying the men on till July, but on the other hand it was just as undesirable that there would have been lost the re-examination fees of all the men who were rejected in March, 67 in number, and the three guineas fee for each amounted to £211 1 10. The examination of those 67 students cost on an average 15s. each, the total expense for examining them being £50. That of course had to be deducted from the £211, and out of the balance the travelling expenses of the examiners had to be paid. He did not say that if they calculated it as it ought to have been calculated it would show that a third examination annually entailed a profit, but he was very positive that it would show that there was only a small deficit—not £300, nor £200, nor £100, about that he was very positive because he had gone into the calculations himself. He really thought the Finance Committee should have contained somebody of sufficient cuteness in financial matters. ("No, no," "thank you," and uproar). Naturally he did not expect the members of the Finance Committee to plead guilty; but there were several members who were not on the Finance Committee and they would not be converted by exclamation but by reasoning.

Vet.-Col. LAMBERT asked what was the average cost of the two examinations that were most profitable to the College.

Mr. WRAGG said the Finance Committee had gone very carefully into the last three examinations and had worked the figures out very carefully and had found that it entailed a loss to the College of £300 on the three examinations.

Vet.-Col. LAMBERT said he wanted to know the average cost of the two most profitable examinations to the College.

Mr. WRAGG said he could not say, but if Vet.-Colonel Lambert would give notice he would have it got out.

Prof. M'FADYEAN pressed for an answer to his question, did the Finance Committee take into consideration that there were 67 students rejected in March and re-examined in July, who otherwise would not have been rejected at all.

Mr. BARRETT pointed out that the Finance Committee did that very thing: but the point was that if they had not had the examination in March they would have saved a very heavy expense, inasmuch as the March examination cost no less than £514 19 7. If those students had been handed on to July it was true the College would not have had their fees, but the College would have saved the sum of £514 19 7.

Prof. M'FADYEAN: No, indeed you would not.

Mr. BARRETT said that the College would have saved £514 19 7. The result was that the loss of £300 odd would have been converted into a gain roughly of £200.

On the motion of Mr. Kidd, seconded by Prof. Prit-

chard, the report of the Finance Committee was adopted.

Registration Committee.

Mr. Simpson (the Chairman of the committee) read the report which stated that applications had been received from certain gentlemen for restoration of their names to the Register, the names having been struck off for non-compliance with section 5, sub-section 4; the explanations and evidence in support being considered satisfactory by the committee, they recommended the restoration of the names of Messrs. Walter Firth, W. Galloway, Alexander Paton, and N. Molyneaux on the usual terms. The committee also reported that in two cases in which prosecutions had been directed the solicitor reported that the persons complained of had gone away, and in one case that the offence had been discontinued. They also reported that in the majority of cases of complaints for advertising and covering undertakings had been given, and in other cases the secretary or solicitor was instructed to obtain further evidence. In one case instructions had been given for the Member to attend before the committee at its next meeting. Thirty-one new cases had been brought before the committee, and with reference to some of those instructions had been given for cautionary notices or further enquiries to be made. The committee also reported a case in which the letters F.E.V.M.A. were used after the name of a Member in a certificate of soundness, which use was justified, and the committee asked for authoritative expression from the Council on that and kindred cases.

Mr. Simpson said with regard to the latter case the committee were anxious to obtain the Council's opinion as to the necessity, or advisability, or good taste of Members of the College using the unnecessary letters F.E.V.M.A. and such like letters in addition to the M.R.C.V.S. He moved the adoption of the report.

Mr. Fraser seconded the motion.

Prof. Penberthy proposed that the Council should express the opinion that they did not regard it in good taste to use such letters as those referred to, F.V.M.A., etc.

Mr. Simpson asked if Prof. Penberthy would include in his resolution the letter "L." It was well known in the profession, and by those who took an interest in the profession, that there was only one diploma-granting body.

Prof. Penberthy agreed that the use of the letters "L" and "E" should be added.

Prof. McFadyean said he was not sure he was in any way opposed to the views expressed by Prof. Penberthy, but he thought it would be necessary to deal with the matter as a question of principle. It would not be enough for the Council to say they disapproved of F.V.M.A. being added but he thought they would ex-

press their dissent in such a manner as to show why they objected to them, in other words, that they should at the same time be expressing their dissent to the addition of what he might call kindred letters, because he took it that the expression was not intended merely against those particular letters, but against all. He wanted to know if the committee objected to the letters F.R.S.E., and if not, why not? He meant it would be necessary to discriminate unless the Council were going to condemn F.R.S.E. which might sometimes be added. He should like to know if he felt inclined might he put F.R.S.E. after his name. (A Voice: "Certainly.") Then why not the others?

Mr. BARRETT said they were two separate bodies.

Prof. PENBERTHY: Good taste would guide us.

Mr. SIMPSON said one had value, and the other had not.

Prof. PRITCHARD said the whole of the difficulty might be met by asking members of the profession not to use letters after their names which were not attached to a corporate body. There was no veterinary medical association that he was acquainted with which was a corporate body. He thought his suggestion would meet the case.

Prof. PENBERTHY: Certainly. I adopt Prof. Pritchard's alteration.

Prof. PRITCHARD: And I will second it.

The PRESIDENT said the proposition now was "That the expression of opinion should go from this Council that members of the profession should not use any title or any letters not granted by corporate bodies.

Prof. EDGAR asked if the Council had any power to enforce the suggestion.

The PRESIDENT: Undoubtedly.

Prof. DEWAR: I do not think so.

The PRESIDENT: Most distinctly. The title F.E.V.M.S. is not granted by the R.C.V.S.

Prof. EDGAR: Surely, sir, you are not holding that I have not the liberty to put any letters I like after my name so long as I do not mislead the public of my professional title—M.D. or B.Sc. or anything else I like.

Prof. PENBERTHY: It is a matter of good taste.

Prof. EDGAR said that unless the Council were prepared to adjudicate on questions of etiquette it was precipitate to take the steps they were doing. There were far more important questions of etiquette which were left untouched altogether because it was said the Council had no power to deal with them.

Prof. PENBERTHY said he was afraid he had not made the object of his proposal at all clear. It was simply to educate the profession. All tastes had been educated and that which was in accordance with the views of the largest number was not always good taste. He thought if it emanated from the College merely as a suggestion it would be educating the profession and that was his only

object. He very much doubted whether the College had any power to remove any letters of any kind after the name of any member of the profession. It was on the broader ground of taste and not etiquette exactly that he appealed.

Mr. Elphick said there was another suggestion that he would like to make with regard to the report. A case had come up yesterday at the committee in which the words "Royal Veterinary College Infirmary and shoeing forge" were used, and the matter was allowed to drop. He thought himself it was a very important question. He would hardly call it unprofessional, and probably the Council had not the power to deal with it, but as the shoeing forge and veterinary infirmary was not affiliated with the R.C.V.S. or held a Royal Warrant of any kind to entitle it to call it a Royal Veterinary Shoeing Forge or Infirmary, he thought it was one of the things the Council should take up and suggest to the members of the profession that they should not use such titles.

The President said that would be really embodied in the wording of Prof. Penberthy's resolution.

Mr. Kidd thought the Council had power to interfere with the users of the letter "L" immediately following the degree of the College—M.R.C.V.S.L. There was no such degree, and his opinion was that those using that letter had no other object than to deceive the public.

The President thought the expression of Prof. Penberthy's motion would be all that the profession required in the matter.

The report was unanimously adopted, and the resolution of Prof. Penberthy was agreed to.

Examination Committee.

The Secretary read the report of the Examination Committee. The Committee suggested that Mr. Mettam should be written to in reply to a letter of his enquiring if an educational certificate would be accepted that had been passed at two or more sittings, referring him to the General Medical Council. With regard to three certificates that had been presented the Committee recommended that the Secretary should see the Secretary to the General Medical Council on the subject to know if they would be accepted by them. The Committee reported that they were unable to recommend the acceptance of Mr. Danino's certificate either under the old regulations or under the new; under the old regulation "writing from dictation" was not included, and under the new regulation "Latin" was not included. The Committee also reported that they could not recommend the acceptance of certain certificates of the Educational Institute of Scotland for Royal College of Physicians Edinburgh and Glasgow, the subjects being passed at different times. The Committee could not recommend acceptance of a certificate (Junior Local, Oxford), as

Latin was not included ; and reported that a certificate of the Oxford and Cambridge Junior was incomplete. The Committee reported that the name of Mr. Porteous was placed in the "passed list" at the last Scotch Examination, but he was afterwards informed that he had been rejected, and he now applied for some relief. The Committee found that the mistake occurred in casting the marks ; they extremely regretted the circumstance, and thought it should be mentioned in the proper quarter. At the same time they did not see their way to recommend any alteration in the examiner's official decision, but they considered it a case for the favourable consideration of the Council.

Mr. MULVEY moved, and Mr. Simpson seconded the motion for the adoption of the report.

Mr. BARRETT : The report is not quite correct with regard to the three certificates mentioned. It was specially laid down by the Council that the question was to be asked whether those students could be registered on the 30th June, 1896. That date has been omitted. That was the crux of the whole thing, I trust that no mistake will be made with regard to it.

Prof. MCFADYEAN : The Secretary was instructed to take those certificates to the General Medical Council and ascertain whether they would have been acceptable on the 30th June, and to act accordingly. I think the wording of the report of the Committee is in other respects wrong. It uses the words "recommend" and "do not recommend." The whole question of rejecting the certificates has been omitted. With regard to Mr. Danino's certificate, it was submitted to the Examination Committee in the month of June or July last, and it was rejected under the belief that he was under the new regulations and had to pass the higher examinations. It was subsequently ascertained that he was not—Mr. Danino being a student who entered prior to the 7th September, 1893, and I maintain that our Solicitor gave a wrong opinion on the point, and influenced the Committee accordingly. (Cries of "order" and "no"). I say that the wording of the Bye-law which introduced the higher examination said that students entering veterinary colleges after the 7th September, 1893, should be required to pass such and such an examination, and up to the meeting of the Committee yesterday it had always been taken to mean that students who entered before that were under the old regulations.

Mr. MULVEY : It is news to me that the Committee had power to accept or reject certificates ; their duty is simply to recommend to the Council, and it is for the Council to say whether they accept them or reject them. At the last meeting of Council was any power given to the Examination Committee to act with regard to these certificates ? Have they power to reject or accept them?

The PRESIDENT : We will refer to the minutes.

The SECRETARY read the minutes : "That a Com-

mittee be appointed to scrutinize the educational certificates of candidates prior to each examination.

Prof. PENBERTHY : That was amended.

The PRESIDENT : This was the resolution : "That the duty of scrutinising the educational certificates be delegated to the Examination Committee."

Prof. PENBERTHY : With full powers.

Mr. MULVEY : To scrutinise.

The PRESIDENT : There is nothing said about powers.

Prof. PENBERTHY : We have the precedent of the Secretary having scrutinised these before, and this Committee was clearly understood to supercede the position of the Secretary of the Council before. Consequently, reasoning on every ground, it is an Executive Committee.

Mr. KIDD : I feel, after the report which has been presented to the Council to-day, that we are placed in a very humiliating position. Those certificates were before the Council at the last meeting and rejected. They came up again yesterday in another form, and the Committee did not feel able to deal with them. They put themselves into a still more humiliating position, and asked the Secretary to go to a certain educational body and ask whether they would be accepted. Several of the certificates are in two parts, and several of them do not contain the recognised subjects. Others that were presented from the Educational Institute of Scotland had passed in all the subjects, but being divided, are not in accordance with the General Medical Council, and were rejected. I consider this unfair to the student, and it is placing us in a very humiliating position. I move as an amendment "That the certificates be sent back to the Examination Committee for further consideration.

Prof. W. O. WILLIAMS : The Secretary for Scotland last year asked whether he should receive divided certificates or not, and he received an instruction that he might continue to receive divided certificates. This was afterwards said to be illegal. There were two students at the College to which I am attached who had divided certificates, but they did not present them to Mr. Rutherford, consequently the students who did present them were legalised by our protecting Mr. Rutherford, and those who did not present them have lost all the work they have done. I wish to plead for those students, as they were really exactly in the position of the men who went for examination. The Secretary for Scotland was told that divided certificates were accepted, and he did accept them. Why should he not accept these two or three that are still remaining, and let us be done with the matter.

The PRESIDENT : I think you will have to alter a bye-law to get that done, and give three months notice. I do not think the Council has the slightest power to do anything of the sort.

Prof. W. O. WILLIAMS also drew attention to the case of Mr. Porteous. Mr. Porteous's name, he said, was posted on the list and signed by the Secretary for Scotland as

having passed his examination, but at the end of three hours the Secretary took down the list and struck out the name. The list was an official communication that those marked on it had passed, and he did not think that the Secretary had power to make any alteration in it.

Mr. Mulvey said the case had been very carefully gone into by the committee, and they viewed it as one of very great hardship. The committee had before them the record sheets, and found that he was marked as "passed." That had been scratched out, and over it had been put "rejected." He thought it was a case requiring the very favourable consideration of the Council, and he moved, That Mr. Porteous be allowed to pass as from July last.

Prof. Williams seconded the motion.

Mr. Simpson considered that Mr. Porteus was passed, as the word "passed" was written upon the examination sheet by the examiners, and he maintained that in all honour the Council were bound to let the man have the full benefit of the marking of the examiners.

Prof. Penberthy asked if the Council had the power to pass Mr. Porteus.

The Solicitor said he was afraid the Council had not the power. He thought the way out of the difficulty was to send the man back to the examiners under Bye-law 87.

The President said the mistake was made by the Secretary in casting up the marks, and not by the examiners. He thought it might be taken that the examiners had looked over the marks, and that that was how the mistake was found out.

Mr. Mulvey said that after the explanation given he would withdraw his motion.

Prof. Dewar: In connection with the Examination Committee's report I should like to make a few remarks in connection with the letter received from Professor Mettam *re* educational certificates. I beg to submit to this meeting that the answer which the Committee has proposed to give to that letter is not a direct answer, and does not advance the question one bit. Simply to refer him to the regulations of the General Medical Council does not do anything at all. Before this resolution in connection with the preliminary examination was adopted in July last there was some doubt as to the terms of the previous bye-law regulating the entrance examinations, and, as Prof. Williams had said, so late as December last a letter was sent to the Scotch Secretary asking him to accept those certificates as they had been accepted before; and although ultimately this was said to be illegal, I think it is very unfair to those students who entered the College and began their professional studies on the understanding that those certificates were to be accepted, to be told at this date that they will not be accepted. Unfortunately, there are still some men studying for the profession who entered previous to this

time last year on this understanding who have not yet, or only in October last, passed their whole preliminary examination. In connection with this subject I may call your attention to the fact that at the April meeting of the Council, when this subject was under discussion in connection with the expunging of the resolution which Mr. Hunting proposed, I asked this question, "If this resolution of Mr. Hunting's is not passed in what position does it leave those students who have already entered the veterinary colleges and those students who are studying in class A and have entered with divided certificates, is it going to be retrospective so far as they are concerned?" There were cries of "No, no" round the table, and the voice of Mr. Fraser was heard, "It cannot be." Now the thing is to be made retrospective, as it were, with regard to these students. The resolution which was passed last July says "Students who enter veterinary schools shall, prior to their first professional examination by the R.C.V.S., produce a certificate entitling the holder to be registered as a medical student." Those students that I referred to had already entered in the preceding October, at least the majority of them, on the understanding that their preliminary examination would be accepted although they had not passed it all at one time. Now, I think it would be beneath the dignity of this Council, after it has arrived at this stage, and when there is no doubt about the course for the future, to go back on the resolution and refuse to admit those students who have been studying for a whole year on the understanding that they were to be accepted when they passed the whole of the subjects mentioned in that preliminary examination.

Mr. Locke: After going through the examination certificates yesterday the Committee found several had been brought forward again that were brought before this Council at the last meeting. I think we are not in a very nice position in having to take those certificates to the General Medical Council to ask them—as if we had not any opinion ourselves—if they would be accepted. I think the best way to get out of the dilemma, and also the best way to give justice to the students who entered previous to July, 1896, would be to accept these divided certificates. I do not think it would be going against the bye-law as amended in July last. Therefore I have pleasure in moving "That all students who have entered any of the veterinary colleges prior to July, 1896, on the understanding that divided certificates would be accepted for the general knowledge examination, shall be allowed to present themselves for their first professional examination on passing all required subjects."

Prof. W. O. Williams seconded the motion.

The President: The Solicitor advises me that Mr. Locke's resolution is not in order.

Mr. Locke: I am sorry for it, sir, because it will be doing a very great act of injustice. It was recommended

by the Examination Committee that three certificates were to be sent by our Secretary to the General Medical Council to ask them if they were eligible. I have to propose that those three certificates be not presented by our Secretary to the General Medical Council to ask if they are in order. I do not see why we should go to the trouble and expense of doing so.

The PRESIDENT : That is an amendment to the report?

Mr. LOCKE : Yes. I propose that those gentlemen who own those certificates apply themselves to get a certificate from the General Medical Council if they are in order, and then present them to us.

Prof. PENBERTHY : It is impossible: it would not serve the same purpose.

Mr. KIDD : May I ask on what ground the resolution proposed by Mr. Locke and seconded by Prof. Williams is not in order?

The PRESIDENT : Because it is an alteration of bye-law.

Mr. KIDD : Which bye-law?

The SOLICITOR : Bye-law 52. Assume that you are entitled to a retrospective enactment, then that bye-law 52 would be still in force, and you cannot have divided certificates under it.

Mr. LOCKE : But we accepted them.

The SOLICITOR : Then you ought not to have done so.

The motion for the adoption of the report was then put and agreed to.

REPORT OF COURT OF EXAMINERS.

The SECRETARY read the reports of the Examiners, which showed that in class A 82 students were examined, with the following result :—Edinburgh : passed, 24 ; rejected, 12 ; honours, first class 2, second class 12. Glasgow : passed, 9 ; rejected 2. London : passed, 24 ; rejected 11 ; honours, first class 3, second class 9.

The Examiners considered the result to be highly satisfactory. The only suggestion they made was that the examinations should, if possible, be conducted at the Freemasons' Hall in Edinburgh as heretofore. The system of examining at the teaching schools was in their opinion not advisable, and the room allotted to class A at the Clyde Street College was unsuitable, owing to the distracting noises made by the heavy traffic outside.

The report on class B gave the following information : Edinburgh : passed, 20 ; rejected 18 ; first class, honours 4, second class 7. Glasgow : passed 6, rejected 9 ; second class honours 3. London : passed, 21 ; rejected, 11 ; first class honours 2, second class 6.

In class C (practical) the examiners reported that a fairly large number of students presented themselves, with a somewhat smaller percentage of passes than usual —the absence of manipulative skill and practical knowledge being the chief difficulty. They complained of the presence in Edinburgh of large numbers of students not

under examination surrounding the examiners and students being examined.

With regard to class C (four years) the examiners reported that the majority of written papers reached a fair standard and carried good marks, raising the proportion of passes above the average. They suggested that it would enable them more fully to carry out their instructions were arrangements made at ensuing examinations to conduct the work in a stable provided with horses harness, etc.

In class C (three years) the following figures were given: Edinburgh: passed 21, rejected 12. Glasgow: passed 8, rejected 5. London: passed 18, rejected 9.

The examiners recorded a marked improvement generally in the character of written papers.

Mr. Mulvey said he was present at the examination, and he contended that the examination for class C (four years) was not carried out in accordance with the intentions of the Council. The idea of the Council was that the examination should be of a more practical character. He had spoken on the matter with Mr. Clarke, and Mr. Clarke agreed in thinking that it would be very much better if instead of the examination being conducted in a room, as it was on the last occasion, it were conducted in a stable in the presence of the animals, with harness and so forth, in accordance with the schedule. Then again, with regard to the *materia medica* examination, there was no practical examination at all. It was usually the case that the student was taken into the pharmacy and wrote out prescriptions and had a certain amount of dispensing, in order to show that he had acquaintance with the matter. He moved "that the whole of the reports be referred to the Examination Committee in order that they may draw up some definite instructions to the examiners on the subject, and also, as there would shortly be an examination in class D, that that subject also be referred to the committee."

Mr. Hartley seconded the motion.

Mr. Villar asked what economy was effected by removing the *viva voce* examination in class A from the Freemason's Hall in Edinburgh to the Veterinary College. He understood that the rent was saved inasmuch as the authorities of the various colleges were good enough to place their rooms at their disposal. But although economy was effected, he considered the room so small as to be unfair to the students examined in it.

The motion of Mr. Mulvey's was carried.

Professional Examinations.

Prof. Williams moved "That the written examinations begin in London on Monday, December 14th."

Prof. McFadyean seconded the motion.

Mr. Abson believed that the examinations could not be cleared before Christmas if started on the 14th, and he

therefore proposed "That the examinations commence on the 9th December."

Prof. McFadyean said he desired not to inconvenience the examiners, but it had occurred to him that perhaps it might be better to have the written examination on the Friday as on former occasions. Students would be just as eligible on Friday as on Monday. Friday would be the 11th.

Mr. Abson agreed to substitute the "11th" for the "9th."

Mr. Elphick seconded the motion.

Prof. W. O. Williams withdrew his motion, and Mr. Abson's resolution was agreed to.

Mr. Simpson: It is understood that we begin on the 11th with the written, but do we go on with the oral on the 14th?

The President: Yes, that was part of the resolution.

Prof. Dewar suggested that an instruction should be given that the examination papers arrive at therespective schools in time for the examination. They did not arrive last time.

Prof. W. O. Williams supported the suggestion.

The President said he would give the instruction.

In reply to Prof. Williams, Prof. McFadyean said that the examiners would reach Scotland about the 17th December.

Fellowship Examination.

On the motion of Prof. Penberthy, seconded by Mr. Hartley, it was agreed that the fellowship examination should take place on Saturday the 12th December.

Election of Auditors.

On the motion of Mr. Wragg, seconded by Mr. Hartley, Messrs. Woodger and Warner, were unanimously re-elected auditors for the ensuing year.

Appointment of Secretary to Scotch Board.

Mr. Simpson proposed "That the Secretary who has served us so well for so many years and whose worth is testified to in the reports of the examiners be again elected as our secretary to the Scotch section of the Board of Examiners—Mr. Rutherford."

Mr. Kidd seconded the motion, which was carried unanimously.

The Secretary read the obituary list, and the Council then adjourned.

SPECIAL MEETING.

On the conclusion of the quarterly meeting, on the 22nd Oct. a special meeting of the Council was held (Mr. R. C. Trigger presiding) for the purpose of considering certain alterations of bye-laws.

The Council proceeded to consider the following notices of motion :—

Alterations to Bye-Law 59.

By Prof. McFadyean : "That there shall be one examination on the conclusion of each full session, and another examination at Christmas for rejected candidates who have conformed to the bye-laws. There may also, at the discretion of the Council, be a third examination in the year."

By Mr. Mulvey : "There shall not be more than two examinations held during the year, the date of such examinations to be fixed by the Council at their meetings in January and October."

Or, as an alternative : "There shall not be more than two examinations held during the year, one in March, April, or May, and one in December or January."

By Mr. Simpson : "There shall be two examinations held during the year, one in May or June, and one in December or January."

The President : I think Prof. McFadyean has the first motion, and I will therefore call upon him.

Prof. McFadyean : Mr. President and gentlemen, most of the members of Council will probably recollect that the motion which stands in my name was one that had been put down on the notice board by Mr. Hunting, and the notice of amendment to bye-law 59, I believe, was prompted by the declaration which was made as early as that time that the holding of a third examination during the year would lead the finances of this College into difficulty. I have already at a previous part of our proceedings given what I think are good reasons for supposing that our finances are not embarrased by the introduction of a third examination to the extent supposed by the Finance Committee. Our Treasurer shakes his head, but I hope that by the next meeting he will be able to give us a more lucid explanation in support of his proposition than the one he favoured us with a few minutes ago. At any rate, if I were satisfied that the Council of the Corporate Body was going to lose a considerable sum of money through the holding of three examinations at equal intervals, then I should not for a moment press for them, feeling certain that the Council would not entertain any such proposal. I am willing to believe that the holding of an additional examination during the present year did entail a small loss because it had to be held without any stipulation as regards the number of students who presented themselves. I think,

however, if we were to stipulate that a third examination should not be held unless there was a sufficient number of candidates to more than cover the expense, it would not be unreasonable to press for it. I do not intend to do that, believing that the present is a time when the finances of the College require to be carefully handled. I think we must make up our minds that for the time at least the third examination has to be dispensed with. But I may point out that the amendment of which I have given notice does not bind the Council to have a third examination. It only leaves it open to them to hold a third examination should the circumstances which make it unadvisable to hold an examination ever disappear. In other words, should our finances again become flourishing, and there are many solid reasons that can be adduced for having a third examination, then it might be asked for. I shall therefore move the resolution which stands in my name with a slight alteration if the Council will permit it. Perhaps it would be as well to read the bye-law which it amends,—"There shall not be less than three examinations held during the year, one in March, April, or May, one in December or January, and a third in July provided that not less than eighteen candidates in any one class are presented for examination." The method in which that bye-law is punctuated seems to bind the Council to have one examination in December, and one in March, April, or May, no matter what the number of students is ; and that there may be one in July provided that there are eighteen candidates. The notice of motion which I have given reads,—"There shall be one examination on the conclusion of each full session and another examination at Christmas for rejected candidates who have conformed to the bye-laws. There may also, at the discretion of the Council, be a third examination in the year." That does not compel an ex amination, and I have already said that at least in London we are prepared to give it up. The amendment I should like to make is this—to leave out the words "rejected candidates who have conformed to the bye-laws," because that would exclude cases of students who for example from sickness or some other cause were unable to be present at the previous examinations—the summer or spring examinations. If anyone from sickness, family trouble, or the lack of funds was unable to present himself at the spring or summer examinations he could not go up in December because he would not be a rejected candidate. Moreover, it would be a disadvantageous thing from the point of view of the Council, and it would considerably cut down the number of students coming up then, and we want a reasonable number to come up in December to pay the cost of the examination. I therefore beg to move the motion standing in my name, amended as follows : "That there shall be one examination on the conclusion of each full session, and another exam-

ination at Christmas. There may also, at the discretion of the Council be a third examination for the year."

Mr. Simpson: Would it be convenient and acceptable to Prof. McFadyean that these three notices of motion should be considered at the same time? I am sure that there is a desire on the part of Prof McFadyean, Mr. Mulvey, and myself to try and come to some practical solution of this difficulty. Inasmuch as all three of these notices of motion refer to precisely the same subject it seems to me that it would be better if they were discussed as one; not to dispose of Prof. McFadyean's, then to re-open the question by having a full discussion on Mr. Mulvey's, and then open the matter again by having a full discussion on mine.

Prof. W. O. Williams: Without discussing the question I should like to ask for an explanation. What is a full session?

The President: A full session is thirty weeks.

Mr. Barrett: Commencing in October?

Mr. Mulvey: No, commencing any time.

Prof. Penberthy: I should like to ask Professor McFadyean when this full session commences.

The President: Bye-law 66 defines it.

Prof. McFadyean: It is thirty weeks after the beginning of a session.

Prof. Penberthy: So that if a man commences his session on January 1st, he does not do a full session until the December following?

Prof. McFadyean: A student does not "do" his session. The session, of course, meant is the sessional year of the College.

Mr. Mulvey: If it will facilitate matters I desire to say that I shall be very pleased to fall in with Mr. Simpson's suggestion that all these resolutions be considered together with a view of arriving at some definite settlement of the question.

The President: We must have the consent of the Council.

Mr. Mulvey: Professor McFadyean does not agree to it.

Mr. Hartley: Bye-law 66 does not say when the session commences or finishes.

Vet.-Capt. Butler: May I ask to have defined the date upon which the examination will take place after a full session, because it seems to me it will be competent for any school to commence a session when it pleases. We must have the date fixed. The sessions at present commence on October 1st.

The President: Prof. McFadyean's resolution has not been seconded.

Prof. W. O. Williams: I have asked for an explanation, sir, before that is done.

Vet.-Col. Lambert: I will second Prof. McFadyean's resolution.

The Solicitor: The session is defined in bye-law 66,

"A session shall be a period of not less than thirty weeks, exclusive of the recognised holidays of the Institution at which the student shall have studied."

Prof. W. O. Williams: I understand from that that in the case of a student joining at Christmas, it is a session from Christmas to Christmas, a student joining in May has a session from May to May, and a student joining in October has a session from October to October.

The Solicitor: He must be there for a period of thirty weeks.

Prof. W. O. Williams: Consequently there are three sessions running at the same time.

Prof. McFadyean: It might admit of that construction, but hardly reasonably. I will say at the end of each sessional year. The date at which a student begins makes a session for him, but we do not call that a session, we do not have two hundred sessions at each college. We have the date of our own session.

Vet.-Capt. Butler: I do not think that will meet the case.

Prof. Penberthy: It will entail holding eight examinations instead of two.

Mr. Mulvey: To my mind Prof. McFadyean's proposition is an indefinite one altogether. First of all it would be possible according to what he had stated, for a student to commence a session at any time, and whenever the session is completed to ask that an examination should be held. It certainly is not defined here. Then, again, I can scarcely call this an amendment to the present bye-law. It simply is a transposition of words, and I think without the consent of the Council Prof. McFadyean cannot alter his resolution. He asks now that the words, "rejected candidates who have conformed to the bye-laws" be eliminated.

Prof. McFadyean: I am well aware that I cannot do that without the consent of the Council, but have you settled yet whether we are discussing all these resolutions or only mine?

The President: That is for you to say, Prof. McFadyean. I must have your consent.

Prof. McFadyean: I have no objection.

The President: With the consent of Prof. McFadyean, Mr. Mulvey and Mr. Simpson these resolutions are all open for discussion together.

Prof. W. O. Williams: I appeal for an answer to my question. If the session has to be from the 1st of October the students must join in October. They cannot join at Christmas or March; or if they do join at Christmas or March they give the extra time unnecessarily. A man joins in October and does ten weeks to Christmas; another joins at Christmas and does twenty weeks to May; he comes back in October but is not eligible until he has put in thirty weeks. Let the

session commence at the three terms—October, Christmas, March, or May.

Prof. PENBERTHY : I should like to point out that if this stands it is possible that we may have six examinations demanded instead of two. It is necessary for Prof. McFadyean to define it in some such way as this,—that two examinations shall be held during the year, one at a certain spot and another at a certain spot, and then afterwards at the discretion of the Council a third may be held.

Mr. ELPHICK : I think this is a very simple question indeed. If the Council chooses to fix two examinations in the year the schools will be compelled to hold an examination at Christmas and another in April or May. The whole thing lies in the question of this Council fixing two definite dates for the examinations to take place, and then the schools can fix the dates of the entrance for the students to conform to that bye-law. The thing is very simple. We do not wish the schools to define any dates at all. If this College simply fixed the dates for the examinations it is then for the schools to conform to that bye-law so as to enable the students to complete their thirty weeks previous to their examination.

General Sir FREDK. FITZWYGRAM : It seems to me, sir, that there is a very simple solution to this matter. The great expense of the examinations is the travelling expenses of the examiners. It seems to me that you would simplify matters very much indeed if by agreement with the Scotch Schools you had two examinations in Scotland, and by agreement with the London Schools you had two examinations in London. You would save your finances there exactly in the same way. It is the travelling expenses that run it up. If the Scotch schools would agree on dates for two examinations in Scotland, and the London schools on dates for two examinations in London that would satisfy everybody.

Mr. SIMPSON : I am very glad to have heard the remarks that have fallen from General Sir Frederick FitzWygram, because I think his ideas coincide almost entirely with the ideas of the Examination Committee.

Mr. BARRETT : Absolutely so.

Mr. SIMPSON : The reasons for some of the members of the Examination Committee not embodying those remarks in their report was that they were desirous of not appearing to dictate to the schools when they should have their examinations, the sole idea being to come to an amicable settlement. With regard to the examinations in London here we have a school which insists on a summer session and with which we as a Council have nothing whatever to do. They prefer to have a summer session. In that case I suggest to Prof. McFadyean that July would be a convenient time for the Camden Town school to hold their examination, and that December would be a very convenient time also for them to hold their second examination. As General Sir Fredk. FitzWygram has

said, the main expense (although I do not agree with him that it is the entire expense) connected with the examinations in Scotland is the travelling. If, then, the Scotch schools, which I understand have discontinued a summer session, can see their way to agree to what I propose—that the examination there should be in May—it would give the students ample time to put in their full thirty weeks. And I also suggest that the second examination for Scotland should be held in December succeeding or preceding immediately the examinations which are held in London. In that way we save the expenses of the examiners going to Scotland in July. Practically it comes to two examinations a year; and I trust Professor McFadyean will see his way to fall in with what I know to be the views of a very large number of this Council. I would suggest that he ask permission of the Council to amend his proposition in the way I have suggested.

Mr. Mulvey: I think some such resolution as this will meet the case:—"That the dates of the examinations shall be fixed by the Council at their meetings in January and October."

Prof. McFadyean: You would never know what the Council might do. We want the thing fixed.

Mr. Mulvey: It is competent for the schools to fix the date at any time they choose so long as there are only two examinations in the year.

Mr. Elphick: I do not see that the arrangement proposed by Mr. Simpson is going to lessen the expense at all.

The President: Oh, yes!

Mr. Elphick: We are bound to have examinations during the year. The examiners will go to Scotland twice a year the same as they do now.

Mr. Simpson: It is the third examination which we want to avoid.

Mr. Barrett: I think Mr. Mulvey's motion will meet the circumstances of the case. I was very pleased to hear General Sir Fredk. FitzWygram's remarks, for his views absolutely coincide with those of the Examination Committee. When discussing the matter we desired to meet the schools reasonably and fairly. We felt that if each school could have two examinations a year all necessary requirements would be granted to them; and I for one would be very pleased to support any resolution of that character. The Scotch teachers appear to be perfectly satisfied with one examination in December and another in May. We feel confident now after Gen. Sir Fredk. FitzWygram's remarks that the London school will be satisfied also, and it is to be hoped that we shall to-night pass a bye-law which shall be unanimous and settle the matter once for all. I feel that there is no point of contention between us whether it is Mr. Mulvey's, Mr. Simpson's, or Prof. McFadyean's motion. It seems to me to be perfectly immaterial so long as we

understand completely and clearly that two examinations only are to be held for each section during the academic year. We as members of the Finance Committee have gone into the question very thoroughly, and we have undoubtedly come to a correct conclusion when we say that during the past year we have lost upwards of £400 by reason of the three examinations. If you agree to two examinations we can pay our way and save money.

Prof. SHAVE: I should like to ask the Treasurer whether it is impossible financially to have three examinations during the year—whether we have lost money.

Mr. WRAGG: All things are possible, but you will get rid of the whole of the funded money, as well as this building, if you go on having three examinations during the year. That's straight!

Mr. SIMPSON: Mr. Mulvey's resolution nearly meets the difficulty but not quite. You must mention the months. After a little conversation with Professor McFadyean he agrees—I think I am right in saying so—to my proposing an amendment to his proposition.

Prof. MCFADYEAN: Certainly.

Mr. SIMPSON: Then I propose, if I am in order, as a substituted motion, "That there shall not be more than two examinations held during the year, viz., in London in July and December, and in Scotland in May and December."

The PRESIDENT: Do you accept that Professor McFadyean.

Prof. MCFADYEAN: Yes.

Mr. MULVEY: That means all that I asked by the resolution of which I had given notice, and I beg to second it.

Prof. MCFADYEAN: You will allow me to simplify matters now by withdrawing my motion, because I feel certain that the Council will not vote for it. But as no other reason for withdrawing the third examination has been assigned than that the state of our finances does not permit of it, I withdraw my motion on the distinct understanding that when the state of the finances does permit of it the Council reconsider it on the motion of somebody. (Hear, hear.)

Mr. WRAGG: Nobody would be more pleased than myself if we could have four examinations in the year, provided that we could get a profit by it.

The PRESIDENT: I take it that these three notices of motion have been considered under this one head. It is now moved by Mr. Simpson, seconded by Mr. Mulvey, "That there shall be not more than two examinations held during the year, viz., in London in July and December and in Scotland in May and December."

The resolution was then put and carried unanimously.

Alteration of Bye-law 52.

Mr. Kidd: The motion standing in my name is to amend bye-law 52 by adding the words—"Such certificates to be obtained at one examination," so that the bye-law will read, "Students who enter the veterinary schools shall prior to their first professional examination by the R.C.V.S. produce to the Secretary of the R.C.V.S. one of the certificates specified in the first schedule hereto annexed, such certificates to be obtained at one examination."

Prof. McFadyean: That bye-law which you have read has been abrogated.

Mr. Kidd: It was not abrogated when I gave notice of motion, and I contend I am in perfect order.

Mr. Dollar: I do not know whether it belongs to the field of practical application, but as a metaphysical question it may be interesting to know whether one can amend something which no longer exists! It is a nice question which I should like to have answered.

The President: The resolution is not seconded, and it therefore drops.

Meat Inspection.

Prof. Dewar: The motion standing in my name is an alteration of bye-law 72, as follows: "That meat inspection be struck out of the Fourth or D examination for the purpose of having it conjoined with the examination in pathology and bacteriology." I do not think that this proposal needs very much argument to recommend it. It must be apparent to anyone that the subject of meat inspection has more in common with pathology and bacteriology than with surgery, medical operations, obstetrics, or anything else which is examined upon in the examination with which it is included. The subject of meat inspection is not a very large one, but coming in the place where it does it looks like an after thought, as if those who drew up the schedule added it on seeing that it had been omitted previously. I do not think I need take up the time of the Council in trying to argue in behalf of this proposal, and I think it will meet with your approval at once. I beg to move the resolution standing in my name.

As there was no seconder to the motion the subject dropped.

Stable Management.

Prof. Shave: My object in bringing this motion before the Council is particularly to secure the undivided attention of the class B students to the subjects of anatomy and physiology. I do not think that any remarks will be necessary to point out the importance of these subjects. I also suggest to the financial department of this Council that they will save exactly one-third of the fees for class B. examination by adopting this motion. Further I would suggest that the student will be exam-

ined in stable management if this motion is adopted at the third examination and of course he will be examined in stable management at his fourth examination. Why a student should be examined in stable management and its details it is difficult to see—at any rate considering the financial position of the College. I ask you, gentlemen, to give this motion your earnest consideration. I beg to move, "That stable management be struck out of the second or B examination and be added to the third or class C, under veterinary hygiene and dietetics."

Mr. ABSON: I will second the motion.

Prof. W. O. WILLIAMS: May I ask Prof. Shave if he means stable management, manipulation of domestic animals, and principles of shoeing?

Prof. SHAVE: I do, and to include that in the subject of hygiene. I think it could be very well included.

Mr. MULVEY: I am altogether opposed to any alteration of the kind. This subject was very carefully considered; and at the meeting the principals of schools, the examiners and members of the Council agreed to this being put in the place it now occupies. It was well known that our students for years were turned out with scarcely any knowledge of stable management, or the internal economy of the stable. I say you cannot too early give them that knowledge, and we can only find out that they have it by examination. The best place for it is in class B, and I suggest that it remain where it is.

Prof. PENBERTHY: I quite endorse Mr. Mulvey's remarks. As a member of the Finance Committee I wish to say at once that we do not put money before competence. Competence first, then money. We regard a competent veterinary surgeon as being best made by education and examination in matters concerning animals, healthy and diseased.

Prof. SHAVE'S motion on being put from the chair was declared to be lost.

On the motion of Mr. Simpson, seconded by Mr. Mulvey, a vote of thanks was accorded to Mr. Trigger for his conduct in the chair, and the meeting then terminated.

ROYAL VETERINARY COLLEGE.

The 228th general meeting of the Society was held in the New Theatre of the College on Friday, October 23rd, at 6.30 p.m. There were present Prof. Hobday, and 60 members. Mr. Kitchin was in the chair.

Professor HOBDAY then read his introductory address.

The CHAIRMAN next called on Mr. Septimus Dixson to read his paper on "Parturition in the Cow and Mare," which was an interesting and carefully prepared paper A discussion ensued which was opened by Mr.

Woollatt and the following gentlemen took part in it:—Prof. Hobday, Messrs. Berry, Wood, Hall, Taylor, Chellew, Amos, Hudson, Young, Durrant, Hobbs and Perry.

Votes of thanks to the Essayist and Chairman terminated the proceedings.

F. Crowhurst, *Assist. Sec.*

The 229th general meeting of the Association was held in the New Theatre of the College on Friday, October 30th, at 6.30 p.m. Mr. Amos was in the chair. There were present Messrs. Berry, M.R.C.V.S.; Pugh, M.R.C.V.S.; and 40 members.

The minutes of the last meeting were read and signed.

Post-mortem specimens were introduced by Messrs. Berry, Young, and Hall.

Mr. Hall then read his paper: the subject was "The Diseases of the Stomachs of the Ox," and he treated it in a thoroughly competent manner.

A discussion ensued which was opened by Mr. R. Hudson, and the following gentlemen took part in it: Messrs. Berry, Wollatt, Dixson, Young, Pugh, Hines, Thackeray, Miller, Amos, and Taylor.

The meeting then terminated with votes of thanks to the Chairman and Essayist.

F. Crowhurst, *Assist. Sec.*

YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

The autumn quarterly meeting was held at the Queen's Hotel, Leeds, on Friday, October 30th. Mr. J. Clarkson, of Garforth (president), was in the chair; and there was a large attendance of members and visitors: Messrs. Frank Somers, (hon. sec.), G. E. Bowman, A. McCormick, A. W. Mason, H. G. Bowes, J. Brand, W. F. Greenhalgh, S. Wharam, Charles Steel, A.V.D., Yorkshire College; Vet-Captain R. W. Raymond, Leeds; J. E. Scriven, (hon. treas.), Tadcaster; J. Clarkson, Garforth; G. Pickering, J. Cooke, Scarboro'; F. Scott, Knaresboro'; A. W. Briggs, Halifax; F. W. Clough, Morley; S. Chambers, Kirkheaton; H. Newsome, J. S. Carter, Bradford; Philip Deighton, Selby and Riccall; T. Fletcher, Sheffield; E. H. Pratt, Northallerton; J. W. Lazenby, Boston Spa; F. Hallilay, Dewsbury; M. Robinson, Barnsley; J. Atcherley, Harrogate; H. Snarry, York; and G. Whitehead, Batley.

Mr. Frank Somers read letters of regret at inability to be present from Professors Pritchard and McFadyean, Messrs. Thomas Pratt, Ripon; A. E. Harrison, Halifax; C. T. Lang, Bridlington; and Mr. J. Abson, Sheffield.

New Member.

On the motion of the Secretary, and seconded by Mr. J. E. Scriven, Mr. C. Drabble, of Bradford, was elected a member of the Association.

Correspondence.

Correspondence was read by the Secretary with regard to the reflections alleged to have been made by a Leeds butcher upon the veterinary profession on the occasion of a deputation of the National Meat Federation to the President of the Board of Agriculture. The incident was closed.

Financial.

The Treasurer formally presented his annual balance sheet, which was considered very satisfactory, as it showed an increased balance at the bankers.

Election of Officers.

Mr, W. F. Greenhalgh rose and proposed that the new President should be Mr. G. Whitehead, of Batley, who, he said, would do credit to the Association in every way. He thought that Mr. Whitehead was entitled to the presidency, for which he was eminently qualified.

Mr. A. W. Mason seconded with feelings of pleasure.

Mr. G. E. Bowman supported. He recalled the fact that he nominated Mr. Whitehead for the position a twelvemonth ago, but the nomination was not carried. He hoped, however, that the resolution on this occasion would be unanimously agreed to, for he was sure that Mr. Whitehead would make them a good president.

Mr. H. Snarry and the Chairman also supported, remarking that Mr. Whitehead had stuck well to the Association and was a very fit man for the presidency.

The resolution was unanimously agreed to.

Mr. Whitehead was not present at the time, but when arriving at a later stage of the proceedings he appropriately thanked the members for the compliment that they had paid to him.

In accordance with the rules of the Association the retiring president became one of the vice-presidents. The other two positions were filled by Mr. McCormick, proposed by Mr. Scriven, seconded by Mr. G. T. Pickering (York), and supported by Mr. Somers ; and Mr. A. W. Briggs moved the election of Mr. S. Chambers, and the Chairman seconded.

On the proposition of Mr. Somers, and seconded by Mr. A. W. Mason, Mr. Scriven was re-elected treasurer ; and Mr. Somers was again asked to fill the office of secretary, the resolution being proposed by Mr. H. Snarry, and seconded by the Chairman.

The Chairman proposed that Mr. A. W. Mason and Mr. A. McCormick be the auditors. This was seconded by Mr. J. Cooke, of Scarboro', and agreed to.

The Late Mr. B. Smith, of Barnsley.

Mr. T. Fletcher, of Sheffield, in suitable terms, proposed a vote of condolence with the family of the late Mr. B. Smith, of Barnsley, for whom professionally he had the greatest respect.

Mr. A. W. Mason seconded. He said that in its early days Mr. Smith took a very deep interest in the Association. They had lost a good friend and a very useful member of the Association.

Mr. Snarry, in supporting, mentioned that the deceased gentleman had filled the office of president.

Mr. Scriven added a few appropriate words, and the resolution was unanimously carried.

A letter was read on behalf of the relatives of the late Mr. Axe, thanking the Association for their kind expression of sympathy. (This letter was written by Mr. G. A. Caswell, Doncaster, on behalf of the relatives of the late Mr. Axe).

INTERESTING VETERINARY CASES.

A Few Notes by the Way, by Mr. A. W. Mason.

Mr. Mason remarked that the cases might be of some use to the young veterinary practitioners. The first matter was a fracture of the humerus. The animal in question had to be cast for an operation on its teeth. It was a large cart horse, which he had twice previously cast for tumours in the shoulder. In view of the size of the horse he naturally told his client that there was a certain amount of risk in throwing him. He, however, threw the animal with every precaution, being assisted in the operation, but when the horse rose from the floor it could not move the off fore limb forward at all.

The next case which he had to bring before them was also one of fracture, and was very interesting. Some 14 or 15 years ago he was called in to see a foal and he told the owner of the animal that he could not do any good, as there was a fracture of the femur. A week later he (Mr. Mason) drove to the place and remarked "You have killed the foal?" The owner replying "No." He then said that whenever the animal was killed he should like to see it. Seven days ago, after a lapse of 14 or 15 years, he received an intimation that the horse was going to be killed. He now produced the portion of the limb in the condition that it was at the time of death, describing it as a very interesting specimen.

Another case which he had to mention showed how simple it was to make a mistake. He went to the neighbourhood of Pontefract to see three horses, all having the same symptoms. When he arrived there he was told that there had been a fourth horse which had been seized in a similar way to the three animals, but that it died within fourteen hours "in great agony." Speaking

of a hackney mare, he said that on opening her box the first glance made one almost positive that she was suffering from lockjaw. On getting nearer to the animal and examining more closely the animal appeared as though bolted to the floor. Then on further investigation the symptoms of acute laminitis were found. The symptoms of the three horses were as follows: Intense amaurotic condition of the eye, increased temperature, hot and cold extremities, the limbs quite rigid, and there was great difficulty in moving; pulse full and increased, temperature 106 degrees. At first glance it seemed as if the animals were suffering from tetanus, having extensive tetanic spasms. There was loss of urination, no action or increased action of the bowels, membranes injected of a rusty colour, no appetite or desire to drink, all the animals had food in the mouth and only appeared to eat when the spasms of pain were most intense. One animal having suffered in the way described and died within 14 hours, three animals suffering in a similar way made one anxious to know what was the cause. He began to inquire as to how the animals were fed. The water was examined and it was not of the best. It was found that the animals were getting a small quantity of wheat, and being fed with vetches. He must admit that he could not understand the symptoms—that the small quantity of wheat flour given would account for these three animals—a hackney mare, a cart mare, and a two-year-old colt—being in the same condition.

Mr. Fletcher: Were they in the same stable?

Mr. Mason: In the same yard but not in the same stable. Proceeding Mr. Mason said that when asked his opinion as to what the animals were suffering from, he replied that he thought they were suffering from poison, but whether vegetable or mineral poison he was not prepared to say. On his second visit, however, he was assured that the cases were some of the most acute cases of laminitis that he had ever seen.

Mr. G. E. Bowman: When did the laminitis come on?

Mr. Mason: It was there at the time. Admitting that the man was telling the truth I could not understand that the small amount of wheat flour would produce the fearful symptoms described, and cause one animal to die within 14 hours of its being attacked. I have never seen pain so intense since I have been in practice, and I can quite understand the previous horse, which had no medical attention, dying in 14 hours.

Detailing the circumstances of a further case, Mr. Mason said they related to an injury of the sternum of a fistulous character. He had had several of these cases in his professional experience, and it was his opinion that no injury of the sternum which was of a fistulous character was curable. He had a horse suffering in this way at the present time. There was acute inflammation between animal's forelimbs. He had read some foreign writers on

the matters, and one of them said that he used the actual cautery after syringing with opodeldoc.

The Chairman, at the conclusion of Mr. Mason's address, said the cases he had mentioned were of great practical interest.

Mr. Chambers asked if the three cases of laminitis got better.

Mr. Mason : Yes, they all got better.

Mr. Fletcher thought the cases related by Mr. Mason were quite out of the common line. There would, in the first instance, be great difficulty at arriving at a correct diagnosis of the cases. He asked whether the same servant fed the whole of the horses, which might have led Mr. Mason to believe that the animal had been "doctored." He had seen very acute cases of rheumatism, but they had not turned into laminitis, as in the cases mentioned by Mr. Mason. He further inquired whether the vetches were old grown—full of seeds. He had seen horses very bad from eating vetches of that description. Like Mr. Mason, he should have supposed there had been poison of some kind, and most likely a vegetable poison. In regard to fistula in the sternum he had had a few cases of that kind to treat. He had found nothing better than a thorough incision and a common digestive ointment with turpentine mixed with it.

Mr. Mason, in regard to the cases of laminitis, mentioned another reason that he suspected poison. A brother of the owner of these animals had seven horses about three-quarters of a mile off. They were being fed with the wheat flour but not with the vetches, and there was no sickness. As to the condition of the vetches, they were just on the point of decay. They should have been cut earlier.

Mr. Fletcher : I think that old-grown lints would produce the symptoms which Mr. Mason has described.

Mr. Chambers said he could bear Mr. Fletcher out as regarded old-grown lints. They were very bad.

Mr. J. Cooke, first of all discussing the fracture spoken of by Mr. Mason, said it was an accident which might happen at any time to the best of veterinary surgeons. Some years ago, before he went to Scarborough, he had five accidents in casting horses. Consequently he adopted another means of casting. Feeding on wheat had a tendency to cause laminitis, and particularly in ponies. He had had more cases of laminitis in ponies than in horses from feeding on wheat.

Mr. Fletcher said that he had a case of accident many years ago. A client, with whom he had a contract, wanted a horse firing for spavin. There was very little the matter with the hocks and he advised the owner to let the animal alone, but he would not do so, and the horse, which had been standing idle a long time, was cast with the usual care. The animal struggled violently while he and his son were firing it, and when they

wanted it to get up it could not do so. He went for the owner, who saw the agony of the animal. The bone was not fractured, but there was much fatty degeneration of the muscles. The animal had torn the muscles very badly. At the post-mortem he could get his finger through the muscles. The matter remained a twelve-month till he went for his account. The owner said that he (Mr. Fletcher) wanted nothing, but that he wanted something from him. He asked what the owner meant, and he replied, "You killed my horse." He (Mr. Fletcher) answered, "No, I did not, but the knacker did, and you ordered him to kill it." The owner then said, "But you injured him by casting him." He inquired whether mischief was meant or was it a joke, and the owner said, "I expect you to pay for him. I shall submit it to the profession and expose you, and do you a great deal of harm." He replied that if the account was not paid he should submit it to another profession. The owner considered the matter and eventually paid the account. He never saw such degeneration of muscular tissue in his life.

Tuberculin.

Mr. H. Snarry then related some experience which he had had with tuberculin.

Mr. Fletcher thought there was a great deal in tuberculin, and that they might try many experiments with it.

Mr. Pickering also believed it would be a great help in the diagnosing of tuberculosis. He asked, for his own information,, what was the law with regard to the vendor of animals affected with tuberculous disease. In the last few months cattle had been purchased at the auction market apparently in a perfectly healthy condition, and the buyers had given a good average price for them. In three cases the animals were seized at the slaughter-house and condemned as being affected with tuberculosis. Did not they suppose that the vendor of these cattle would be more likely to know that the animals were suffering from the disease than the unfortunate purchaser or purchasers. He thought the person who sold ought to be liable for compensation.

Mr. Greenhalgh objected to the line of argument taken by Mr. Pickering. It was ridiculous to suppose that a man knowing his cattle were suffering from tuberculosis would take or send them to the market. It was a fact that the best bred beasts were the most liable to be affected with the disease. He had been surprised at the internal condition of some of the best beasts that he had ever handled alive.

Mr. Pickering thought he had been misunderstood. Personally he was of opinion that it was unfair to a purchaser that he should lose £17, £18, or £20.

The matter then dropped.

A Fox Terrier's Fracture.

Mr. F. Scott mentioned a case of fracture of the femur of a fox terrier, without displacement. On Wednesday, the 14th October, the dog, which was about five months old, was run over by a heavy spring cart, a wheel going over part of his back and the hind leg. The animal ran to him howling with pain and carrying the leg. He examined the limb carefully, but could not find any fracture. He put the dog in a small kennel till the next morning, when, strange to say, he appeared sound, running and playing with other puppies without limping or evincing any pain. On the following Saturday the terrier was playing in the yard, and suddenly it gave a great howl and lifted up its leg, He examined the limb, finding a severe fracture. The animal was then poisoned. It had not met with any accident between the Wednesday and the Saturday.

Mr. Somers thought the explanation of fractures of the femur, and no displacement occurring at the time, was that the periosteum is exceedingly thick on the femur and will often hold the fracture together until some violent exercise displaces the bone by bursting through the periosteum.

Mr. Clough pointed out that in this instance there was no periosteum where the fracture occurred.

Mr. J. Carter (Bradford), Mr. P. Deighton, Mr. Scriven, and Mr. Mason continued the discussion.

Mr. A. W. Briggs said the strong fibre over the muscle often kept the fractured bone together.

Mr. Bowman said that this summer he had a similar case of a hunter which had been kicked by a cart horse.

The Chairman said his experience was that these cases of fracture without immediate displacement were comparatively common.

Veterinary Obstetrics, etc.

Mr. T. Fletcher next gave some of his experiences of veterinary obstetrics and "prolapsus uteri." He observed that he had not chosen the subject because he had anything very new to lay before the meeting, but because he thought it might be of use to some of the youngest members of the Association, especially at a time when all kinds of motor power is being brought into use to supersede the horse. When such a thing occurred the veterinary surgeon would have to give more attention to the disease of other domestic animals, and more especially the cow, the producer of our milk and butter.

When called to a case of calving or foaling it was advisable to get as much of the history of the case as possible, so that they might judge whether the animal had been badly injured by someone previously. It was not unusual to call in the assistance of half the neighbourhood before the veterinary surgeon was sent for. Next make a thorough examination to know what position the fœtus was in. Here Mr. Fletcher related a case that he

had a short time since where he thought he had two fœtus to deal with. As the animal would not stand up he raised her behind as much as possible with bundles of straw. He attached great importance to position, to have the hindpart raised whether the animal was standing or lying, or the forepart raised when the fœtus could not be reached. In the case in question the hindpart was well raised, and after two hours' hard work he was in no better form than at the beginning. He had recourse to Reid's syringe and pumped half a bucketful of warm water, to which was added a little soap liniment, with a little turpentine in it (sapo tereb. liniment). When a great portion of the fluid had been pumped into the uterus he found that he could move the fœtus about, and separate the placenta from the legs and head, so that he was able to get a sharp hook into the back of the head and a rope on one foreleg, and then with the crutch (which, together with other instruments, was exhibited) push back what he thought to be the hind parts of a second fœtus. By continuous and gentle attention for half-an-hour the thing came away with a great splash. But there was not a second one. The fœtus was a full-grown calf with anchylosed spine, and was doubled round nearly to a circle. The head, which was more like a football than a head, was packed close to the belly, and one foreleg was half the thickness of the other. The cow made a good recovery. Two months afterwards a very similar case occurred. He again adopted the pumping in of warm fluid and he found that it greatly facilitated the operation. It was his intention to give the system a good trial. In cases of breech presentation, with the hind legs lying under and along the belly, he generally passed a blunt hook into the rectum of the fœtus, and a cord round one or both thighs, and brought it away in the form it was lying in. He very seldom dismembered the fœtus and when he did it was generally beheading them. There was no general rule to be laid down in obstetrics, but, like a good mechanic, think well before you begin to act. He would not enumerate the various positions of fœtus they met with, the description of which would fill a big book. He concluded with a description of his method of replacing the prolapsus uteri, and the instruments used by him.

A brief discussion followed, the following members taking part therein: Messrs. H. G. Bowes, Newsome, Deighton, Whitehead, Cooke, H. Snarry, Scriven, and the Chairman.

Bovine Diseases.

Mr. Whitehead had promised to contribute a paper on "A few Bovine Diseases met with in every day practice," but the afternoon being advanced he postponed its reading for another occasion.

The Retiring President.

Mr. Frank Somers moved a hearty vote of thanks to Mr. Clarkson for the excellent manner in which he had discharged the duties of President during the past year He observed that Mr. Clarkson had filled the presidency with great credit to himself and to the satisfaction of the members of the Association and had done his utmost for its welfare.

Mr. Whitehead, in seconding, said that he would have to follow a very good President.

Mr. Cooke supported, likewise testifying to the efficiency of Mr. Clarkson in the chair, and alluding to the satisfactory result of a new feature during the year of having at each meeting a series of short papers for discussion, instead of only one long contribution. Altogether they had had a very good year.

The resolution was carried with acclamation.

Mr. Clarkson, in reply, said he had some misgivings when he accepted the presidency, but he was very pleased to find that they thought he had filled the chair well. With regard to the change in the reading of papers, he thought the last two meetings went a long way to prove that the alteration was right. He thought he was correct in saying that the attendance that afternoon was the largest they had had for years.

The business having concluded, the gentlemen present were entertained to tea by the Leeds members of the Association.

Frank Somers, *Hon. Sec.*

THE CENTRAL VETERINARY MEDICAL SOCIETY.

An ordinary general meeting of this Society was held in the Grand Master's Room, Holborn Restaurant, at 6 p.m., on Thursday, November 5th, 1896. The President (Veterinary-Lieut.-Col. J. Kettle, A.V.D.) occupied the chair, and there were present as guests of the Society R. C. Trigger, Esq., of Newcastle-under-Lyme, Staffs, (President of the Royal College of Veterinary Surgeons), G. Thatcher, (solicitor R.C.V.S.), A. W. Hill, Esq., (secretary, R.C.V.S.), and Colonel J. Lambert, (Director-General, A.V.D.), R. A. Powys, Esq., (secretary R.V.C.), also the following gentlemen members of the Society and friends who were invited to the annual dinner: Messrs. A. L. Butters, W. F. Barrett, J. A. W. Dollar, H. W. Edgar, M. Clark (and three friends), Geo. Chesterman, F. W. Dowell, A. E. Gostling, H. Gray, C. Humphrey, W. Reekie, R. H. Singleton, Hugh A. McCormack, A. Hawes, P. Harris, F. W. Kendall, W. Hunting two friends, F. Jarvis, E. M. Jarvis, Major Longhurst, A.V.D., F. C. Mahon (hon. sec.), A. Roger-

son, Sir H. Simpson, F. Samson, A. Wheatley (Reading), F. W. Wragg and friend, Professors Macqueen, McFadyean, and Penberthy and friend, F. Orford L. Walpole, W. J. Mulvey and two friends, R. Porch, W. E. Taylor, A. Prudames, Thos. Wooff, W. Roots, C. Sheather, S. Villar, Dr. Bullock, and J. Rowe (hon. treas.)

The minutes of the last meeting were on the proposition of Prof. Penberthy, seconded by Major Longhurst, taken as read.

Correspondence.

The Hon. Sec. read letters and telegrams regretting inability to attend the meeting from Profs. Williams, McCall, and Dewar (Professors of the Scotch Veterinary College), also from Major Tennant and Right Hon. W. Long, M.P., of the Board of Agriculture, and from Messrs. Roalfe Cox, Vet.-Capt. L. Blenkinsop, H. W Caton, F. Elworthy, Geo. C. Lowe, J. Woodger, J. S. Hurndall, Prof. Hobday, Sir F. FitzWygram, Bart, H. Withers, and H. Sessions.

Election of a Fellow.

A ballot resulted in the unanimous election of R. H. Singleton, Esq., M.R.C.V.S., of 55, South Molton Street, Grosvenor Square, S.W., as a fellow of the Society.

PRESIDENTIAL ADDRESS.

By Vet.-Lieut.-Col. J. Kettle, A.V.D.

Gentlemen,—An officer of the Army Veterinary Department seldom holds the position of president of a veterinary society. This is our misfortune, and I venture to think due entirely to the circumstance that military exigencies rarely leave us sufficiently long in one place to gain the confidence of the members or to permit us to accept an office we may be unable to hold for its natural term. Of one thing I am certain, that it is no want of interest in our profession and its aspirations that keeps the Army veterinarian from taking a prominent position. We are only too pleased to avail ourselves of any opportunity of co-operating with members of the profession for our common good, and our mutual improvement. The honour you have done me by permitting me to occupy the chair of this Society, is one that I gratefully accept and that I hope will never cause one feeling of regret to you.

The most pleasing of the functions which devolve upon me is the suitable acknowledgment of my predecessor's services in the presidential chair, and in the present instance nothing could give me greater satisfaction than to testify to the continued prosperity of the Society under Prof. Penberthy's sagacious and unremitting direction. The past year has been one of steady improvement. I appeal to each and every one of you to

ensure by your continued interest that the year to come shall be in no respect inferior to it.

On an occasion like the present it is usual to dwell shortly on the chief events of the passing year, on the advances it has seen, on the discoveries it has brought forth, and on the lessons it has to teach us ; but whilst it is customary to touch on all just subjects for congratulation a wise precedent demands that a presidential address shall be as brief as possible.

The first event of importance is the final recognition by the Board of Agriculture of our just demands in regard to the Veterinary Department of that Board. When in 1894 the Animals Department under the control of a non-professional person was substituted for that previously presided over by a member of our profession, the entire veterinary press protested in the strongest terms against what is justly regarded as a slight upon our reputation. From that day onwards the agitation, headed by *The Veterinary Record*, has continued unabated.

The Council of the Royal College has, on numerous occasions brought the matter before the authorities, and I am glad to be able to call your attention to the satisfactory result which is embodied in the letter of the President of the Board of Agriculture to our own late President.

A subject of much interest and one which has unfortunately given rise to very serious conflict of opinion is that of the standard of matriculation to be demanded by the veterinary student. Putting entirely on one side, however, the controversial aspects of this question, it is matter for satisfaction that the veterinary profession has united in recommending a standard equal in every respect to that of our medical brethren, and that henceforward our calling has equal claims both to the social distinction accorded to that other branch of the healing art, and to the offices necessary for the extinction of diseases communicable from animal to men.

Another subject for congratulation is the successful founding of a veterinary college in Ireland. The Council of the Royal College has considered the question, and under the guarantees given for the maintenance of the same standard as the English and Scotch schools has decided to allow the affiliation of the new College.

Perhaps no address of this kind would be complete without a reference to the discovery of the X (Röntgen) rays, which promises to revolutionise certain special departments of surgery. As showing how rapidly all the advances of science are now utilised by the veterinarian, I may point to the many excellent skiagrams and articles on the discovery which have recently appeared in our journals.

The repeal of the Locomotives on Highways Bill has given an impetus to the building of locomotive road carriages which will make itself strikingly appreciable

during the next few days. On the 19th November, I believe, London streets will be open to motor-car traffic, and we shall have an opportunity of judging the efficiency or otherwise of the new means of transport. At present difficulties will doubtless arise, but it must be evident that the present marks an era in the history of the horse as a means of draught in large towns. Happily the Britisher has an inborn love of the horse, so that it will be long before we see its services altogether dispensed with. We, however, who sit here to-night have little anxiety as to the result.

At one time I thought I might be able to trace some professional connection with the Army to a much earlier date than 1796. During my search I came across a satirical description of an army of the 18th century. It commenced with this :—"An Army is the very reverse of the Church, and as we learn piety in the one, 'tis 10,000 to 1, but we are taught prophaneness in the other." I thought that was a good start, and felt sure any reference to us, in any form, would come in for a fair share of satire from this author. He went on :—"The oaths of the private men, rattle louder than their drums and may be heard almost at as great a distance as their cannon." You all know they *did* swear in Flanders. No ! There were no veterinary officers in *that* Army. For it was a description of Marlborough's Army, and I was nearly a century too early.

Subsequent investigation has proved to my satisfaction that this year 1896 is the centenary of the Army Veterinary Department, which was established at the instigation of a special board of general officers which met to inquire into the best way of combating the ravages of disease then existing among Army horses. The Board recommended that commissions as veterinary surgeons in the Army, should be given to graduates of the veterinary school then in existence.

In the Army List for 1797, in the establishments of cavalry regiments, the title of veterinary surgeon appears for the first time, but no names of officers are given. In the Army List for 1898, however, the following names occur :—

1st Life Guards . . .	Bloxham—without a christian name.	1st January, 1797.
2nd Life Guards—same.		
1st Dragoon Gds.	Rbt. Richardson,	22nd April, 1797.
3rd „ „	George Watts,	22nd May, 1797.
1st Dragoons	James White,	12th April, 1797.
2nd „	William Parkinson,	12th June, 1797.
3rd „	Thomas Boardman,	12th June, 1797.
4th „	Edward Causer,	1st June, 1797.
7th „	R. Stewart Cumming,	12th April, 1797.
10th „	John Denny,	12th April, 1797.
11th „	John Ship,	25th June, 1796.
16th „	James Harrison,	6th April, 1797.

John Ship must therefore be considered the father of the Army Veterinary Department.

The first mention in the Army List of veterinary surgeons being appointed to the Royal Artillery appears in the Army List for 1805, where we find posted to the Brigade of Gunners and Drivers of the Royal Regiment of Artillery, Veterinary Surgeon John Percival, dated 1st Sept., 1801, and Veterinary Surgeon William Stockley, dated 1st June, 1804. It has been suggested that the date, 1801, in the case of Percival should be 1804, but in the Royal Artillery Muster Rolls and Pay List for 1801 appears the receipt from Veterinary Surgeon John Percival for pay from 1st September to 31st December, at eight shillings per diem, signed by John Percival, showing that he did duty with the Royal Artillery in 1801. When making enquiries into this subject, I found the following letter. It is addressed to the Master General :—

"Woolwich, 17th Sept., 1801.

Dear Hadden,

Least I should forget, let me tell you, you have forgot to nominate Percival as the veterinary surgeon. Send it me by the return of the messenger, everything else is arranged.—Yours, etc.,

(Sgd.) J. Macleod.

Lieut.-Col. Hadden.
etc., etc.

That letter is signed by Sir J. Macleod, the first Deputy Adjutant General of Artillery.

There was a rapid increase of veterinary surgeons in the Army from that date, in consequence of the wars with France. In 1805 I have already stated there were two veterinary surgeons in the Brigade of Gunners and Drivers of Royal Artillery, in 1806 there were eight, in 1808 nine, and in 1814 ten.

At the end of the 18th century the prevalence of disease and death-rate amongst Army horses was deplorable. In every regiment and battery glanders and farcy were common complaints, and large numbers were destroyed annually from these diseases alone. There were many other diseases prevalent in consequence of ignorance, improper treatment, and defective stabling; but by scientific study of the whole question these have gradually passed away. As an instance of what the Army Veterinary Department has now done for the Army I may mention that for eight years there has not been a single case of glanders-farcy amongst Army horses. I may state, in addition, it is a recognised fact that in the British Army there is a smaller mortality among animals than in any other army in the world.

The saving of life amongst Army horses on board-ship has also received most careful investigation and inquiry. About 50 years ago Major O'Hara's battery of Artillery lost 50 per cent. of the horses on a voyage from London

to Halifax, Nova Scotia. So many improvements were made during the next 20 years, that in 1867, when I was in charge of the ship "Bolivar," she carried to Alexandria for the Abyssinian Expedition, 131 mules from Alicante, 225 from Scanderoon, and 131 from Gibraltar. We experienced extremely bad weather, and the food supplied was whole barley, bran, and chopped straw. At Suez I was put on board the "Star of the North." This vessel was fitted for 114 animals, but by removing partitions, etc., we carried 208 mules. The heat between decks going down the Red Sea was intense, and some of the unfortunate animals were even located below sea-level. However, by unremitting care, attention to diet, and scrupulous cleanliness, we managed to land 695 animals at the various ports with the loss of only two. Quite recently the 9th Lancers embarked on two vessels at the Albert Docks, without any previous preparation. The horses were disembarked at Durban with the loss, I am told, of only one horse on each vessel, and prepared to take the field at once.

Gentlemen, I think you will agree with me that the officers of the Army Veterinary Department have done their duty to the State. You cannot be surprised therefore to hear that for years past we have been asking for some recognition of our services, especially for an increase of the pensions on retirement, to enable us to live in comparative comfort after spending from 30 to 35 years of our lives under all conditions of climate and hardship in the service of the country. The Royal Warrant has been issued at last, and although we have not been granted all we hoped for, still we have received some addition to our pensions, and we are thankful. What has rendered the grant of double value is the generous acknowledgement on the part of authorities of the services rendered by veterinary officers. An official in a high position is quoted as having officially stated "that there was no body of men in the Army more deserving than the veterinary officers, they rendered excellent service, always were obliging, never put forward petty grievances, made themselves universally liked and respected, and set an example of zeal and devotion to duty." The recognition given by the State, and by the Army reacts upon the whole professsion. The officers of the Army Veterinary Department are merely a sample of the whole, and our work and position I claim sustain the credit of the profession.

Gentlemen, I feel sure that if the public were asked their opinion of the civilian practitioners of our profession, their answer would be the same. The estimation of the profession by the public is steadily increasing. May we, who have obtained this position, avail ourselves of every opportunity of improving it, and of proving ourselves at once indefatigable and indispensable.

With these few remarks I conclude my address to you, and I can only express my sincere regret that the short

time at my disposal, from a very busy life, has not enabled me to contribute something more worthy of the occasion. (Applause.)

THE DINNER.

The annual dinner was held in the King's Hall Rooms at the Holborn Restaurant, Vet.-Lieut.-Col. Kettle, the president, in the chair, having on his right Mr. R. C. Trigger (President R.C.V.S.), and on the left Colonel Lambert, C.B., Director-General, A.V.D. The company numbered about 60. During dinner an orchestra from the band of the Royal Artillery gave a selection of music.

The toasts of "The Queen," and "The Prince and Princess of Wales and the Royal Family" were given from the chair and duly honoured.

Sir H. SIMPSON, J.P., proposed "The Army, Navy, and Auxilliary Forces." This was replied to by Colonel Lambert, who spoke in high terms of the body of officers under his charge, and their zeal in discharge of their duties, and announced the mention of the veterinary officers in the despatches on the Dongola expedition. Mr. Matthew Clarke also replied from the Auxilliary Forces.

"The Central V.M.S." was given by Mr. J. A. W. Dollar, and was suitably replied to by the President, Lieut.-Col. Kettle.

"Our Guests," was proposed by Mr. W. Hunting. These included Col. Lambert, C.B., Mr. Hill (secretary R.C.V.S.), Mr. Thatcher (solicitor), Mr. Trigger, Mr. Trigger, Mr. Powys, R.V.C., and a few other gentlemen. Mr. Hunting said that we were enjoined to show hospitality to strangers, inasmuch as we might be entertaining angles unawares. That was distinctly a Hebraic view of the position and we now "go one better" by selecting our angels for ourselves, and he quite thought that this was more satisfactory than going out into the highways and bye-ways and inviting their guests at random. He complimented Col. Lambert at the number and importance of the reforms in the A.V.D. which it had fallen to his share to realise. Mr. Hunting also spoke of the services rendered by the registrar and the solicitor, the latter of whom he said had been very effectual in his application of the broomstick to recalcitrant members and other offenders against the V.S. Act.

Col. Lambert, Mr. Hill, and Mr. Thatcher replied. Mr. Hill said he had now been welcomed at their board for 17 years. Mr. Thatcher said he had, in spite of having to wield the broomstick, been met with even more courtesy and intelligent consideration than he had expected in his dealings with a body of gentlemen. In fact the broomstick was hardly necessary.

"Our Late President" was duly responded to by Prof. Penberthy, who thanked the members for the manner in which they had supported the authority of the chair in the past year.

In replying to the toast of "The R.C.V.S." Mr. Trigger said that he hoped the recent special meeting had cleared off what he might call the controversial matter, and that they might look forward to a year of steady useful work. He took up Mr. Hunting's remark as to the appearance of the members and guests, and drew a comparison with their status and surroundings of even 25 years ago.

"Our Treasurer and Secretary" was proposed by Mr. Prudames, who spoke earnestly on the services rendered by their Hon. Treas., Mr. Rowe, and the Hon. Sec., Mr. Mahon.

Mr. Rowe, in replying, reminded the members that they would make his labours lighter and pleasanter by keeping their subscriptions well up to date.

Mr. Mahon also briefly replied.

"The Schools and Examiners," proposed by Mr. S. Villar, was replied to by Prof. McFadyean in a neat speech, at the conclusion of which he said that he thought that men were seldom rejected who ought to be passed, and he was prepared to swear that none were passed who ought to be rejected. (Laughter.)

Prof Macqueen replied for the examiners, he being an examiner for the Fellowship. He invited gentlemen to come forward for that degree, and assured them that they should receive every consideration, but that they would be expected to show evidence of study equal to membership graduates. He quoted some of the questions asked some years ago, to the amusement of his auditors, and expressed his conviction that so far as the teaching for the membership was concerned it was more than abreast of the examining in several particulars.

Throughout the evening the speeches were noticeably briefer and more to the point than in some previous years.

Several songs and duets were given during the evening.

ROYAL VETERINARY COLLEGE V.M.A.

The 230th general meeting of the Association was held in the New Theatre of the College on Friday, November 6th, at 6.30 p.m. Mr. Wood was in the chair. There were 45 members present.

The minutes of the last meeting were read and signed.

Mr. Wollatt read a paper on "Parturient Apoplexy in the Cow," which shewed a great deal of thoughtful preparation. An animated discussion ensued in which the following gentlemen took part: Messrs. Gillard, Radway, Hall, Amos, Hudson, Miller, Wood, Lowe, Lake, Perry, Kitchin, and Chellew.

The meeting then terminated with thanks to the essayist and chairman.

F. Crowhurst, *Assist. Sec.*

The 231st General Meeting was held in the New Theatre of the College, on Friday, November 13th, at 6.30 p.m. Mr. Hall was in the chair. There were 56 members present.

Mr. Amos read a very interesting and instructive paper on "Examination of Horses as to Soundness."

Mr. Wood opened the discussion, and the following gentlemen took part in it:—Messrs. Bloxsome, Hall, Kitchin, Gillard, Smith, Miller, Dixson, Jones, Berry, Deacon. Parsons, and Aldred.

Votes of thanks to the Essayist and Chairman terminated the proceedings.

F. Crowhurst, *Assist. Sec.*

GLASGOW V.M.A.

The usual weekly meeting of the Association was held in the theatre of the College on Wednesday, November 4th, at 7 p.m. There were present 43 members and some visitors. Dr. Jas. McI. M'Call occupied the chair.

The Chairman called on Mr. Henry Simpson to read his paper on "Some Incidental Diseases connected with Parturition in the Cow."

A paper was afterwards read by Mr. Geo. Thompson on "Laminitis."

A discussion ensued in which Messrs. Marshall, Olver, Broom and Conchie took part.

Votes of thanks to the chairman and essayists terminated the proceedings.

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